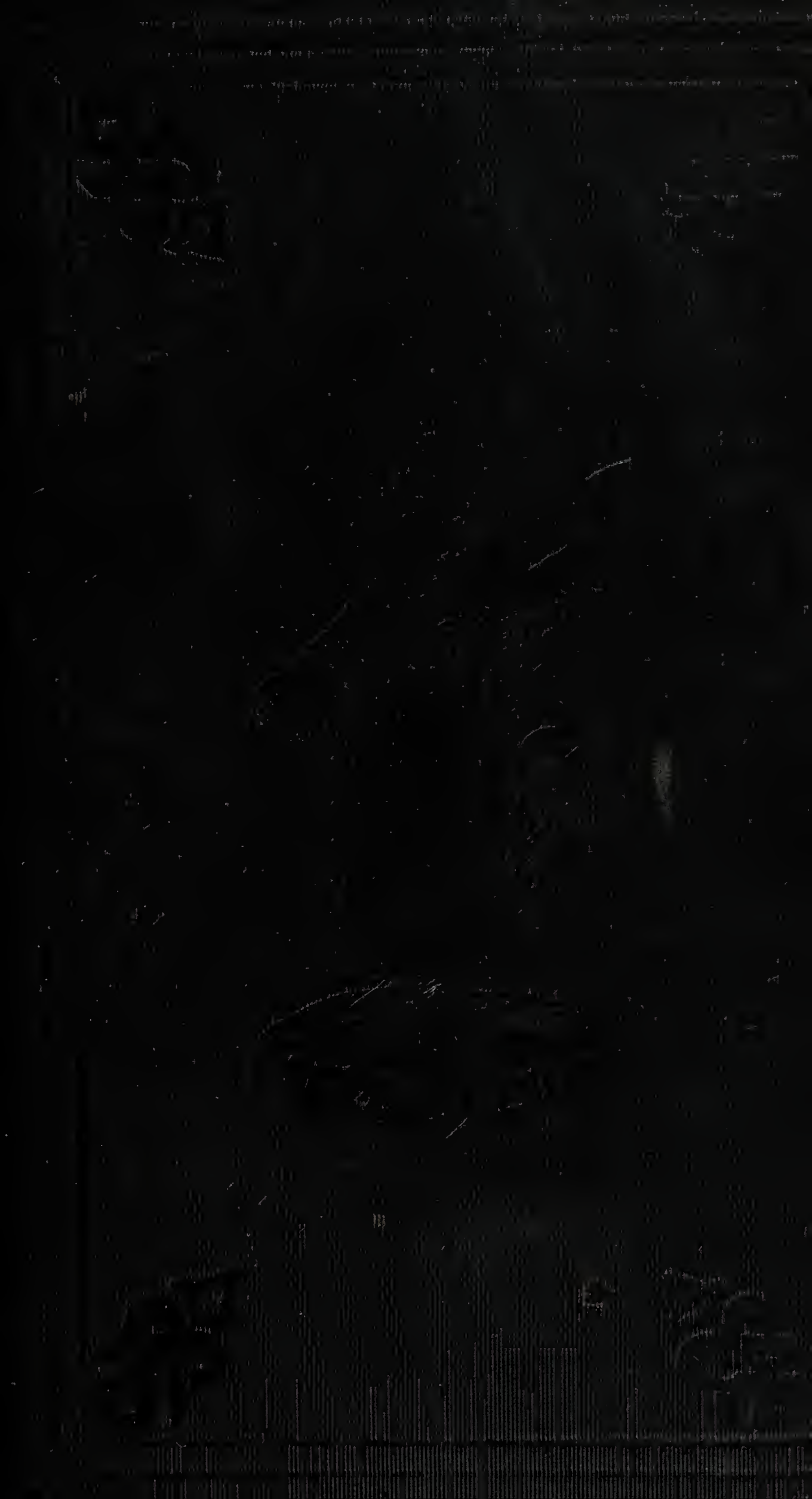


Digitized by the Internet Archive
in 2019 with funding from
Wellcome Library

https://archive.org/details/s1id13377620

# HALF-YEARLY ABSTRACT

OF THE

# MEDICAL SCIENCES.

JANUARY—JUNE.

1846.

Vol. IV will appear on the 1st of January, 1847.

Books, &c., for notice, to be sent as soon as published (carriage free) to Mr. Churchill, Princes Street, Soho, or to the Editor, Bury St. Edmunds.

43134

THE

# HALF-YEARLY ABSTRACT

OF THE

# MEDICAL SCIENCES:

BEING

A PRACTICAL AND ANALYTICAL DIGEST OF THE CONTENTS OF THE PRINCIPAL BRITISH AND CONTINENTAL MEDICAL WORKS PUBLISHED IN THE PRECEDING SIX MONTHS.

TOGETHER WITH

A SERIES OF CRITICAL REPORTS ON THE PROGRESS OF MEDICINE AND THE COLLATERAL SCIENCES DURING THE SAME PERIOD.

EDITED BY

W. H. RANKING, M.D. CANTAB.

PHYSICIAN TO THE SUFFOLK GENERAL HOSPITAL.

Apparatu nobis opus est, et rebus exquisitis undique et collectis, arcessitis, comportatis.
CICERO.

VOL. III.

JANUARY—JUNE 1846.

LONDON:
JOHN CHURCHILL, PRINCES STREET, SOHO.
EDINBURGH: MACLACHLAN & CO.
DUBLIN: FANNIN & CO.

MDCCCXLVI.

C. and J. Adlard, Printers, Bartholomew Close.

## NOTICE TO CORRESPONDENTS.

*In consequence of the great expense attending the receipt of numerous communications, especially from America and the Continent, the Editor feels compelled to remind his Correspondents, that in future no parcel can be taken in which is not pre-paid.*

# LIST OF BRITISH AND FOREIGN PERIODICALS REFERRED TO IN THE "HALF-YEARLY ABSTRACT."

---

### BRITISH.

*British and Foreign Medical Review.*
*Medico-Chirurgical Review.*
" *Transactions.*
*Transactions of the Provincial Medical Association.*
*Edinburgh Medical and Surgical Journal.*
*London and Edinburgh Monthly Journal.*
*Dublin Journal of the Medical Sciences.*
*Lancet.*
*Medical Gazette.*
*Provincial Medical Journal.*
*Medical Times.*
*Dublin Medical Press.*
*Bell's Pharmaceutical Journal.*
*Guy's Hospital Reports.*
*Dublin Hospital Gazette.*
*Chemical Gazette.*
*Chemist.*

### AMERICAN.

*American Journal of the Medical Sciences.*
" *of Science and Art.*
*Philadelphia Medical Examiner.*
*New York Journal of Medicine.*
*Boston Medical and Surgical Journal.*

### FRENCH.

*Annales de Chirurgie.*
" *d'Hygiène.*
" *de Chimie et de Pharmacie.*
" *des Maladies de la Peau.*
*Archives Générales de Médecine.*
*Bulletin des Académies.*
*Encyclographie Médicale.*
" *des Sciences Médicales.*
*Journal des Connaissances Médico-Chirurgicales.*
*Gazette des Hôpitaux.*
" *Médicale.*
*Journal de Chirurgie de M. Malgaigne.*
*Revue Médicale.*
*Journal de Chimie Médicale.*
*Journal de Chimie et de Pharmacie.*

### GERMAN.

*Schmidt's Jahrbucher.*
*Zeitschrift für de Gesammte Medicin.*
*Müller's Archiv für Anatomie, &c.*
*Liebig's Annalen der Chemie und Pharmacie.*
*Canstatt's Jahresbericht.*
*Buchner's Repertorium.*
*Haller's Archives für Physiology. und Patholog. Chemie.*
*Casper's Wochenschrift.*
*Poggendorf's Annalen.*

N.B. Every periodical here specified is consulted *directly* by the Editor and his coadjutors.

# CONTENTS.

## PART I.—PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

### SECT. I.—*Zymotic Diseases.*


| ART. | | PAGE |
|---|---|---|
| 1. | Clinical Lecture on Typhus Fever. By Dr. Corrigan | 1 |
| 2. | On the Nature and Treatment of Miasmatic Fevers. By Dr. Upsher | 5 |
| 3. | Report on the use of Quinine in Miasmatic Diseases. By Dr. Van Buren | 9 |


### SECT. II.—*Diseases of the Nervous System.*


| | | |
|---|---|---|
| 4. | On the Treatment of Acute Mania. By Dr. Conolly | 13 |
| 5. | On the Nature and Treatment of Delirium Tremens. By Dr. C. J. B. Williams | 21 |
| | Ditto. By Dr. Macgregor | 22 |
| 6. | On the Nature and Treatment of the Epileptic Seizure. By Dr. C. J. B. Williams | ib. |
| 7. | Congenital Hydrocephalus successfully treated by the Iodide of Potassium. By Dr. Barbour | 25 |


### SECT. III.—*Diseases of the Respiratory System.*


| | | |
|---|---|---|
| 8. | Pathology and Treatment of Aphonia. By John Bishop, Esq. | 26 |
| 9. | On Paracentesis Thoracis. By Dr. Hughes | 29 |
| 10. | On the Pulmonary Melanosis of Miners. By Dr. Brockmann | 30 |
| 11. | On Acute Tuberculosis of the Lungs. By Dr. Hasse | 32 |


### SECT. IV.—*Diseases of the Circulatory System.*


| | | |
|---|---|---|
| 12. | Observations on Anæmia. By M. Trousseau | 33 |
| 13. | Ditto. By Dr. J. Turnbull | 36 |
| 14. | On the Rational and Physical Signs of Aneurism of the Aorta. By Dr. O'B. Bellingham | 38 |


### SECT. V.—*Diseases of the Chylopoietic System.*


| | | |
|---|---|---|
| 15. | On Disorders of the Digestive Organs depending upon Anæmia. By Dr. Turnbull | 43 |
| 16. | On the Medical Treatment of Dyspepsia. By Dr. Barbour | 49 |
| 17. | On Cancer of the Stomach. By Dr. Walshe | 50 |
| 18. | On Fatty Degeneration of the Liver. By Dr. Horaczek | 53 |
| 19. | Clinical Observations on Jaundice. By Dr. Dunglison | 55 |
| 20. | On the Treatment of Constipation from Inertia of the Bowels. By Dr. Tessier | 58 |
| 21. | On the Value of Abdominal Tenderness as a sign of Enteric Inflammation. By Dr. Griffin | 61 |

## SECT. VI.—*Diseases of the Genito-Urinary System.*


ART. PAGE

22. On Dropsy with Albuminous Urine. By Dr. Todd . . . 62
23. On the Treatment of Albuminuria. By Dr. Alexander Wood . . 67
24. On Dropsy after Scarlet Fever. By Dr. O'Ferral . . . 72


## SECT. VII.—*Therapeutics.*


25. On the Therapeutic Influence of Warm Moist Air in the Treatment of Inflammation of the Air Passages. By Dr. Golding Bird . . . 73
26. On the Therapeutic Application of Magnetic-Electricity. By Dr. Neligan . 74
27. Modus Operandi of Opium in the Treatment of Hemorrhage. By Dr. W. Griffin 75
28. Formulæ for the removal of Dropsical Accumulations. By Dr. Chapman . 76
29. Rules for the Administration of Arsenic in the Treatment of Skin Diseases. By Mr. Hunt . . . . . 76


---

# PART II.—SURGERY.

## SECT. I.—*Symptomatology and Diagnosis of Surgical Diseases.*


30. On the Discharge of a Serous Fluid from the Ear after Fractures of the Petrous Portion of the Temporal Bone. By MM. Chaissaignac and Robert . 77
31. Diagnosis of Lateral Curvature of the Spine. By James Coles, Esq., M.R.C.S. . 80


## SECT. II.—*Nature and Causes of Surgical Diseases.*


32. Neuralgia from a Bony Tumour of a Nerve. By Mr. W. H. Colborne . 82
33. Spontaneous Gangrene. By D. Angelo Binaghi . . . 83
34. Peculiar Ulcer of the Anus. By J. Scallan, Esq. . . . . 86
35. Encysted Tumour of the Labium . . . . . 87
36. Hereditary Brittleness of Bones, &c. By Dr. Paull . . . ib.
37. Curable Sinuses depending upon Exfoliation of the Bones of the Pelvis. By Professor Syme . . . . . 88
38. Gangrene of the Hand and Fore-arm, from Occlusion of the Axillary Artery. By Professor Tiedemann . . . . . 90
39. Injurious effects of Pressure in the employment of the Taxis for the reduction of Hernia. By T. P. Teale . . . . . 91


## SECT. III.—*Treatment of Surgical Diseases.*


40. Cases of Abscess of the Tibia, with their Treatment. By Sir B. Brodie . ib.
41. Treatment of the Anchylosis of the Knee-joint by a New Operation. By Dr. G. Buck . . . . . 95
42. Novel, simple, and successful Method of treating Ruptured Tendo-Achilles. By Dr. Hannay . . . . . 99
43. Compression in the Treatment of Cancer. By Dr. Walshe . . 100
44. New Method of employing the Taxis. By Dr. Grynfeltt . . . 102

ART. PAGE

45. Ligature of the Left Subclavian Artery between the Scaleni Muscles. By Dr. Warren . . . . . 103
46. Gastrotomy successfully performed in a case of Obstructed Bowels. By Dr. Manlove . . . . . 105
47. Cases of Contracted Cicatrices treated by the Taliacotian Operation. By J. C. Parker, Esq. . . . . 106
48. Treatment of Varicocele by Compression . . . . . 108
49. Vascular Tumours of the Meatus Urinarius. By Dr. Lever . . ib.
50. Cure of Spina Bifida. By Dr. Latil de Thimccour . . . . 113
51. Ligature of the Posterior Tibial Artery. By Dr. C. Hall . . . 115
52. New method of treating Fractured Ribs. By Dr. Hannay . . . 116
53. Axillary Aneurism cured by Compression on the Distal Side. By Dr. M. Goldsmith . . . . . 117
54. Lithotomy. By Dr. Bresciani de Borsa . . . . . 118
55. Radical Cure of Hernia by "Invagination." By J. Christophers, Esq., M.R.C.S. . . . . 119
56. Treatment of Wounds of the Arteries of the Superior Extremity by Compression, &c. By M. Fleury . . . . . 121
57. Rigid Contraction of the Lower Jaw successfully treated. By R. W. Tamplin, Esq., F.R.C.S.E. . . . . 123
58. Varicocele radically treated by Removal of a Portion of the Scrotum, &c. By Watson, M.D. . . . . 124
59. New Method of Cure of Aneurism by Galvano-puncture. By M. Petrequin . 125

## Sect. IV.—*Rare Surgical Cases.*

60. Case of Gunshot Wound, in which both Carotid Arteries were tied at an interval of four days and a half. By Dr. Ellis . . . . 127
61. Extirpation of a Polypus from the Frontal Sinus. By Dr. Wuth . . 129
62. Case of Dislocation of the Spine. By Mr. Colborne . . . 131
63. Contraction of the Thoracic Aorta to complete Closure. By Prof. Tiedemann 132
64. Calculus between the Urethra and Vagina. Operation. By Prof. Syme . 134
65. Removal of a portion of Liver from the Human Subject. By Dr. Macpherson . . . . . 135

---

# PART III.—MIDWIFERY AND DISEASES OF WOMEN AND CHILDREN.

## Sect. I.—*Midwifery and Diseases of Women.*

66. Post-partum Hemorrhage. Its Source and Pathological Nature. By Professor Simpson . . . . . 137
67. Expulsion of the Ovum entire at the full period. By Dr. Rootes . . 140
68. Development of the Placenta within the Fallopian Tube, with fatal result. By J. Bell, Esq. . . . . 141
69. Case of Vaginal Pregnancy . . . . . ib.
70. Knots on the Umbilical Cord. By Dr. Waters . . . 142
71. Singular Intra-uterine Perforation of the Placenta. By Thomas Taylor, Esq. 143
72. Circumstances which render Amputation of the Cervix Uteri unjustifiable. By Dr. Ashwell . . . . . ib.
73. Birth of Twins at an interval of seven days . . . . 144
74. New Sign of Pregnancy. By Dr. Pollenden . . . . ib.
75. Influence of the Mother's Imagination upon the Child . . . ib.

ART. PAGE

76. Cure after Rupture of the Uterus and the Abdominal Section. By Dr. Kuhne de Weyer . . . . . 144
77. The Diagnosis of Ovarian and Abdominal Tumours. By Dr. J. H. Bennett . 145
78. The Nature of the Cicatrix of the Uterus after Rupture. By Dr. Merrem . 146
79. Hysterical Aphonia cured by the Nitrate of Silver . . . 147
80. Ovarian Dropsy. Accidental Rupture of the Cyst. Recovery. By Mr. Eager . 148
81. Extirpation of the Uterus. By Mr. Gregson . . . . ib.
82. Uterine Hemorrhage treated by Galvanism. By Mr. Dorrington . . 149
83. Inversion of the Uterus at the Fourth Month. By Dr. Skae . . . 151
84. Fatal Case of the Cæsarean Section. By Mr. Lyon . . . 153
85. The Bark of Prunus Laurocerasus in Amenorrhœa. By Dr. Kastner . 156

## SECT. II.—*Diseases of Children.*

86. On the Influence of Rachitis on Fractures. By M. Guersent . . 157
87. Treatment of Umbilical Hernia . . . . . 158
88. The Resuscitation of Still-born Children . . . . ib.
89. Amputation of the Limbs in Utero . . . . . 159
90. Fractures in the Fœtus during Labour . . . . ib.
91. Hare-Lip . . . . . ib.
92. Case of Sanguineous Apoplexy in a Child. By Mr. Worthington . . ib.
93. Pathological Observations on Tubercular Meningitis. By Dr. Hamernjk . 160
94. Medullary Sarcoma of the prostate in a Child. By Mr. Bree . . . 162

---

## REPORTS.

Report on the Progress of Practical Medicine, Pathology, and Therapeutics. By the Editor . . . . . 165

Report on the Progress of Surgery. By H. Ancell, Esq. Lecturer on Medical Jurisprudence, &c. . . . . 202

Report on the Progress of Midwifery and Diseases of Women and Children. By H. Ancell, Esq. . . . . 245

Report on the Progress of Human Anatomy and Physiology. By W. S. Kirkes, M.D. 277

Report on the Progress of Pathological Chemistry. By George Day, M.D. Cantab, &c. . . . . 298

Report on the Progress of Forensic Medicine and Toxicology. By W. A. Guy, M.D. Cantab, &c. . . . . 328

Report on the Progress of Materia Medica and Pharmacy. By George Day, M.D. Cantab, &c. . . . . 350

Report on Public Health . . By W. A. Guy, M.D. Cantab. &c. 383

---

Books received . . . . . 396

Index to Vol. III. . . . . 397

Notice to Correspondents . . . . . v

Errata . . . . . xi

## ERRATA.

We have to apologize to Mr. Gulliver for the insertion of an erroneous quotation referring to his researches on the buffy coat of the blood, and beg to call our readers' attention to the following corrections:

In Vol. I, p. 252, instead of the first paragraph, read as follows:

1. There is a remarkable acceleration, after a few minutes, of the rate with which the red corpuscles sink in the *liquor sanguinis;* and in the serum alone though to a less degree.
2. This acceleration may be increased by increasing the aggregation of the corpuscles; and prevented or reversed by preventing or destroying the aggregation of the corpuscles.
3. The sinking of the corpuscles may be slower in blood thinned by weak saline solutions than when mucilage is added with the salt.
4. The sinking of the corpuscles is slower in serum made thinner and lighter by weak saline solutions, than in serum made thicker and heavier by mucilage.
5. In the blood of the horse, the buffy coat forms regularly; and the red corpuscles unite, as if partly fused into each other, and collect into masses.
6. There may be no buffy coat, or but a comparatively thin one, on this blood, when it has been made thinner and its coagulation retarded.
7. The formation of the buffy coat is neither due to an attenuation of the *liquor sanguinis*, nor to a diminution of its specific weight, nor to slow coagulation; but to an increased aggregation and quickened sinking of the corpuscles.
8. These facts are favorable to the old doctrine of lentor or viscidity of the blood and union of the corpuscles; and against the more recent doctrine of attenuation of the blood in inflammation.
9. The corpuscles of the horse sink much quicker in his serum than the corpuscles of man do in his.
10. Increasing the proportion of the corpuscles hastens coagulation and diminishes the formation of the buffy coat more than increasing the serum only.
11. Increasing the proportion of water simply does not hasten the coagulation of the blood, as increasing the proportion of serum does.

In Vol. II, art. 4, the last fifteen lines were placed in brackets by mistake, being the remarks of the editor of the 'Monthly Journal.'

Art. 32, for *veratria alba*, read *veratrum album.*

Art. 92, line 14, for *trocar*, read *toucher.*

Page 201, line 10, for Dr. *Graves*, read Dr. *Stokes.*

Vol. III, p. 62, line 12 from bottom, for *mortius*, read *morbus.*

Page 165, 4 lines from bottom, for *piæmia*, read *pyohæmia.*

" 191, line 12, for *injection*, read *ingestion.*

" 196, " 14, " *Dr. H. Bennet*, read *Dr. John Hughes Bennett.*

# ABSTRACT OF THE MEDICAL SCIENCES,

*&c. &c.*

## PART I.

## PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

### SECTION I. ZYMOTIC DISEASES.

ART. 1.—*Clinical Lecture on Typhus Fever.* By Dr. CORRIGAN.

(*Dublin Hospital Gazette*, March 15, 1846.)

[THE case upon which the following remarks are founded may be thus briefly stated. A female, aged 35, was admitted on the twelfth day of the fever; the premonitory symptoms were rigors, followed by wandering pains in various regions of the body, with hot skin and laboured respiration. When visited, she was lying in the last stage of the malady, with a dull intellect, rapid feeble pulse, petechiæ, and involuntary stools. The treatment was actively stimulant. The *post-mortem* examination revealed effusion of mucus into the bronchi as the only morbid appearance; with this exception, not the slightest trace of disease was found either in the intestinal canal, as might have been anticipated from the purging, or elsewhere.]

It is necessary, in the first place, to have impressed firmly on the mind what this case teaches us,—that there is essentially no local disease in typhus fever, or, perhaps more correctly speaking, that typhus fever is not a local disease; that the symptoms which form the most remarkable characters of the disease are not the effects nor the symptoms of local disease. This will explain to us a remarkable feature in fever, which we see in no structural local disease, viz. the sudden recovery of a patient, his sudden transition from an apparently dying state to almost perfect health. It is not an uncommon thing to observe a patient without a single symptom to excite anxiety, who, but twenty-

four hours before had appeared not likely to live more than a few moments. From this we may learn a useful lesson in practice, viz. never to abandon a patient in typhus fever as hopeless until the very signs of immediate death are on him. Were structural disease present, we dare not hope thus. In the case which I have narrated to you, and the progress of which you have seen, you have there learned that the case was fatal without local disease.

The question then comes, What is typhus fever? In answering this question, and in all my other observations, I shall keep as clear as possible of all hypothesis, and confine myself to the information derived from pure observation. The patient was in the possession of her faculties, and retained them unclouded, up to within a very short period of death. They only became affected in her last moments. The brain was found in a sound state after death; she possessed, although debilitated, command over her limbs; voluntary power and sensibility were not deranged. The disease was, then, not in the brain or spinal cord. There was neither change of structure in the lungs nor signs of pulmonic disease. The respiratory organs, then, were not either in function nor structure the seat of the disease. The tongue was moist; there was neither vomiting nor purging (until quite the last); nor was the belly tympanitic. The digestive organs were not, then, sufficiently deranged to explain the symptoms. Let us now turn to the circulating system and exercise our observation on it. We find a pulse very small, bearing hardly any pressure; and then, extending our observation to the capillary system, let us examine its state. The cheeks are dark in hue, from the sluggish circulation of their capillaries, and their distension. The skin is mottled—and from what? From stars of little capillaries distended with blood beyond their natural size, constituting the maculæ of typhus fever; and, in addition, in innumerable spots over the surface, minute portions of blood have escaped from the capillaries, constituting petechiæ. I would distinguish maculæ in fever from petechiæ. By maculæ I understand simply distension of the capillaries in very small circles or patches, but these capillaries still retaining the blood within them and carrying on the circulation; while by petechiæ I would understand stigmata diffused over the skin and produced by effusion of blood outside the vessels. It is easy to distinguish the one from the other. Maculæ disappear momentarily under the pressure of the finger; petechiæ remain permanent, for the blood effused cannot move on pressure. Let us carry our observations still along the capillary system of the skin. If the patient remain for even half an hour in one posture, what is the result? That the parts pressed upon become very dark in colour, dark in proportion as the circulation becomes more and more sluggish, and that, finally, the dark part of the skin pressed on would become—and, indeed, does become very often—gangrenous; or, in other words, that the circulation ceases in it, the vessels become incapable of carrying it on or restoring it, and death or gangrene is the result. We do not see such lesions take place in the capillary system in other diseases, in which the patient will often lie longer than in fever; nor do we see them in cases of fracture, where the patient is often obliged to lie in one posture for weeks together. We have in all these facts proofs, then, of an extremely debilitated state of the capillary system of circulation. We know by Hunter's experiments that we can judge of the

slowness or want of energy in circulation by the depth of dark shade of the blood in the part. We find in typhus fever that the danger of the case is, *cæteris paribus*, in proportion to the darkness of the maculæ; in other words, to the deficiency of energy in the capillary system, and in this we have additional proof of the state of the capillary system in the form of fever now before us. Let us proceed with our examination. We find the conjunctiva of the eye in such cases deeply congested, the vessels tinged of a dark red, and in great measure running over the conjunctiva. If we pass now to the urine, we find most frequently in such cases that it is of a muddy, dark hue, not throwing down a sediment, but, when heated, showing albumen in it. It appears as if the blood had escaped from the vessels of the kidney, just as it escapes from the capillaries of the skin to form petechiæ. We may always consider this form of urine as indicative of severe fever.

Now, instead of considering this state of the capillary system in the skin and conjunctiva as a mere symptom, or as a mere local affection, let us look upon the capillary system as a whole throughout the body, and let us reflect, as we find it in one part, so is it in all; and we shall then have an idea of the importance of its state, as constituting an essential constituent of typhus fever. It may be said, What right have we to assume that the capillary system is affected throughout the system as we see it in the surface? To this the answer is, I think, not difficult. First, we have the evidence of the urine, already alluded to, showing that both serum and colouring matter have passed through; next, we have the fact that, as the fever proceeds and the debility becomes greater, the capillaries of the lungs pass into a state of hypostatic congestion often from mere posture, a state as far as we can see in no way different from their state on the surface; and lastly, I think we have a right to infer, that when the state of the capillary system in all these instances is of the same kind, its affection is general through the system. From observation, then, and reasoning from the premises furnished to us by observation, we can arrive practically at this conclusion, that in the type of typhus fever at present prevailing, a lesion consisting of want of tone in the circulatory capillary system is its great feature, is the great lesion we have to combat, a lesion not of a particular organ or structure, but of a function universally diffused through the living being; and if we suppose this lesion of function general, extending through every organ, we can easily comprehend how injurious must be its effects, and how depressing its influence. Let us, then, as we stand at the bedside of a patient in typhus fever, recollect that in looking at the extent of the maculæ, or for the presence of petechiæ, or examining the distended vessels of the conjunctiva, we are looking not at a mere local derangement, but that we are studying in these external indications the state generally of the circulatory system as a whole. In this view we can understand why we attach importance to the colour of the maculæ, why we look upon rose-coloured maculæ as a good sign, and dark-coloured maculæ as indications of danger. The dark-coloured maculæ are indications of danger, because their colour is owing, we know, to an enfeebled circulation. The feebler it is, the darker will be the colour of the maculæ; while the more energetic is the capillary circulation, the more vivid will be the colour of the blood passing through it. In this view we can also find

an explanation of the fact, that a patient may have an intellect not disturbed, may have a cool skin, a clean tongue, a soft abdomen, a pulse not above 70 or 80, with volition and sensibility perfect—and yet die of typhus fever in seven or eight days. Of what does the patient die in such a case? He dies of this lesion of the function of circulation. In most cases this lesion is not the only one present, although often the most prominent; but I wish to fix attention on it in this that I may call an analytic view of fever, as it leads to a practical rule for the administration of one of our most important agents in the treatment of fever, viz. wine. You are too often bewildered in the directions as to its employment. You are told to beware of delirium in its administration, and yet again you read that delirium subsides under its use. You read instructions either to refrain from its use when the tongue is dry, or to judge of the propriety of continuing its exhibition by its effects on the tongue. Instead of attempting to reconcile all the contradictory statements, and, too often, inexplicable advices, that are laid down for you, turn from the books to the living book—the patient—and read from him. Ask yourself what is it in typhus fever you prescribe wine for? Is it for delirium? No. Is it to prevent its approach? Again, no. Do you give it for a dry tongue? Certainly not. What is it that, as you consider a patient's state, would lead you to think of its employment? Is it not the state of the function of circulation, taken as a whole, indexed to you by the pulse, on the one hand, and by the state of the capillary system of circulation in the skin, on the other.

It is for this you give it. It is the specific remedy directed to remedy the general lesion of the function of circulation, and hence in its administration you may give it, and you must give it, whether there is or there is not delirium; for delirium may be present or absent in a case requiring its exhibition for the function of circulation. You should give it indifferently, whether the tongue is moist or dry; for the tongue may be either, and yet wine may be required; and hence the tongue becoming moist is not an indication that you may dispense with its use—nor its continuing dry a sign to make you discontinue it. You may give it with a soft abdomen, or with an abdomen tympanitic, for similar reasons. You are giving wine, recollect, as the specific remedy for the lesion of the function of circulation (remember, always comprising under this the capillary and cardiac circulation); and by the change in the circulation, and by this alone, are you to judge of the necessity of continuing, decreasing, or augmenting its dose. Under its exhibition you will see the vessels of the conjunctiva contract, the maculæ become rose-coloured, and the patches of skin in the face and on dependent portions of the body, lose their dark livid hue. Keep this then in mind, the lesion in fever for which you give wine is the lesion of circulation, and if this function from debility require it, you must give it under all circumstances of derangement of other functions. Of the quantity required, it is quite impossible to lay down any rule. No two cases will have exactly the same amount of depression of circulating energy; no two cases will require precisely the same amount of wine. In some cases, four to six ounces are enough for a few days, in continuance, to restore the circulation to sufficient tone; in other cases it requires as much as one ounce of wine every hour, or 24 ounces in 24 hours; and even in addition to

this, as much as eight ounces of brandy; and all this barely sufficient to preserve the circulation from sinking.

We must never abandon a case of fever as long as there is life; we must remember what the *post-mortem* of the case in question tells us, that in its present form there is no structural disease; that the patient, even in the dying moment, is sinking from a mere lesion of function, and that even then recovery is not hopeless; and we must recollect what clinical observation of several cases even now under our observation in the hospital tells us, that the patient one day in a state seemingly moribund, may on next day, or within twenty-four hours, be out of danger. It will not unfrequently happen that even the power of swallowing is lost for several hours; that a small portion of brandy or wine can only be got down by raising the patient in bed, throwing spoonfuls of brandy into the pharynx, and then holding up the patient's head until it descends to the stomach, apparently almost by its gravity. Even thus it sometimes cannot be passed along to the stomach, but even then we can stimulate the circulating system by injections; and in some cases which you have seen I am confident the preservation of life has been owing to æther, given in the form of injection every two hours, in quantities of two drachms, until under its stimulating effect the circulation gained some vigour, and the power of swallowing returned.

With the same object of stimulating the capillary circulation, blisters are applied in succession over the surface. The nurse is supplied with four or six small blisters; one after another is applied, with intervals of six hours between them, over chest, abdomen, thighs, and legs. They are thus applied, not as counter-irritants, not to act as derivatives on internal structural disease, but as stimulants to excite the capillary system. An action produced in any part of it will be conveyed through the whole, and thus their action on the skin coincides with and assists the action of the internal stimulus of wine, ammonia, and brandy.

## Art. 2.—*On the Nature and Treatment of Miasmatic Fevers.*

By G. Upsher, M.D. Norfolk. U.S.

(*Philadelphia Medical Examiner*, Feb. 1846.)

[So rare, comparatively speaking, is the occurrence of the various forms of intermittent fever, under the present improved cultivation of the country, that our readers may possibly think our pages needlessly occupied by the consideration of this class of maladies. We believe, however, that the following two communications will be found worthy of the space allotted to them, if it were only in consequence of the improved method of exhibiting quinine, therein expressed.

In the present essay the author endeavours, in the first place, to ascertain what is the nature of the miasm which produces intermittent fever. M. Bérard, in a recently published memoir (*Journal des Connaiss. Medico-Chirur. Sept.* 1845,) contends that the active principle of paludal effluvia is hydrogen, which enters the system and produces certain specific effects. The author examines this theory at some length, and brings forward several propositions which clearly show its untenability. He regards the

solution of the question as far distant now as ever it was. Of the treatment of intermittent fever he speaks as follows:]

In the milder forms of intermittent fever, it is a common and very successful practice to exhibit an emetic and cathartic combined, at the outset of the cold stage. The act of vomiting tends to remove the congestion of the internal organs, and by so doing, to disturb, in a great degree, the morbid action in the system; while the cathartic which usually moves the bowels towards the conclusion of the hot stage, promotes perspiration, and prepares the system for the exhibition of anti-periodic remedies. This emeto-cathartic is usually composed of calomel, grs. x, tartar emetic, grs. ij.

*Opium* is highly recommended by Drs. Shapter, Elliotson, and others, as a good remedy in the cold stage. According to the author's experience, its effects are rather injurious than salutary. The distressing nausea which is often an attendant upon the first stage of intermittents, the author has seen promptly relieved by the cold infusion of the eupatorium perfoliatum. This plant, apart from its tonic and diaphoretic properties, possesses the peculiar power of allaying the restlessness and aching of the limbs in ague.

During the hot stage the patient should be kept moderately warm, with a free circulation of air in the room. To allay thirst finely powdered ice will be found useful. Should there be much fulness of the head, and injection of the conjunctiva, it will be proper to take a few ounces of blood from the arm. As soon as the hot stage begins to decline, which is evinced by the appearance of slight moisture in the palms of the hands, we should commence immediately with the sulphate of quinine. To wait until there is complete cessation of febrile action is to lose time, and thereby hazard the recurrence of a second paroxysm. This remedy is of undoubted importance in all miasmatic fevers, whether intermittent or remittent. Most writers, however, direct quinine to be given in *intermittents*, in doses, and at intervals proportioned to the type of the disease, while, in *remittents*, there is scarcely one who does not condemn its use *in toto*. Thus, in the *quotidian*, we are told to administer two grains every hour until fifteen grains have been given; that in the tertian, one grain every hour or two, until the same quantity has been given, will prevent another paroxysm; while in the *quartan*, it may be exhibited in smaller doses even at longer intervals. (Shapter, Brown, Watson, Eberle, Elliotson, and others.) As it is impossible, however, when called to a patient just seized with fever, to determine what type it will assume, and as it is frequently of vital importance to ward off a second paroxysm, this mode of administering quinine will often fail to accomplish the desired effect. My invariable practice is, as soon as there is the slightest diminution in the hot stage, to exhibit quinine in doses of three or five grains every two hours, *until the patient complains of noises in the ears.* It has long been known, that cinchona and its preparations, when exhibited in considerable doses, will produce such noises in the ear as buzzing, ringing, roaring, &c., but I am not aware that it has heretofore been proposed *to consider such effects as demonstrative of the entire subjection of the system to the influence of this remedy.* It is to this point, then, as one of considerable importance in the management of miasmatic fevers, that I wish particularly to direct attention.

In the exhibition of *mercurials*, when it is desired to produce their specific effect upon the system, their use is discontinued upon the appearance of *ptyalism*, since it is well known that if benefit does not result when the mouth becomes sore, no good is to be expected from a continuancy of the remedy. So, too, in using *arsenical preparations*, we look for no further benefit from them after *œdema* and *gastric disturbance* have supervened; upon a principle similar to these I give the sulphate of quinine in miasmatic fevers. As soon as ringing, buzzing, or roaring in the ears come on, I feel satisfied that the medicine has produced its strongest impression, and that its further exhibition would be worse than useless. *If the disease do not then yield, it must be combated with some other remedy.* Sometimes I have seen only four grains produce this effect,—often it will require forty grains, and in some rare cases, doses incredibly large, will fail to accomplish it. Cases of the last description, according to my observation, terminate fatally; *while, on the other hand, I have never lost a patient after quinine had affected the head*, in the manner above indicated.

I am well aware that many a case of miasmatic fever terminates favorably, though quinine has not been used to the extent here recommended; but I know, too, that many a case continues for weeks which might have been cured in forty-eight hours. The action of quinine upon the system is perfectly incompatible with that of malaria—therefore, if it require but a *single grain* to render harmless the poison, give it; if it require a drachm, do not hesitate to give it; and whether it will require a grain, a drachm, or any quantity greater or less than either of these, may be ascertained by reference to the effect produced upon the patient's head.

Since March, 1844, I have treated ninety cases of intermittent, and fifty-eight cases of remittent, fever, in all of which quinine was exhibited until the head felt its effects. All recovered; and in no instance did harm result from this manner of giving the medicine. In a few cases, the patients were disposed to be restless, but a simple purgative, and one night's sleep were sufficient to carry off any unpleasant symptom. Nor in intermittent fever, have I ever seen a recurrence of the paroxysm; or, in remittent, the continuance of febrile action for more than eight hours, *after ringing, roaring, buzzing in the ears supervened.* Instead, therefore, of recommending quinine in doses, and at intervals, according to the type of the fever, I would in every instance give it in large doses every hour, until the patient complains of peculiar sounds in his ears, as above indicated. And I as invariably considering patients out of danger when *tinnitus aurium* comes on during the exhibition of quinine in miasmatic fevers, as I do when ptyalism supervenes after the exhibition of mercurials in any of the phlegmasia.

Dr. W. J. Tuck, of Memphis, has recently published in the *New Orleans Medical and Surgical Journal*, a very interesting paper upon the employment of large doses of quinine in bilious remittent fever. As far as my experience goes it is perfectly in accordance with that of Dr. Tuck. We do not often find, in this section of country, remittent fevers characterized by such malignant symptoms as are attendant upon them in the West and South-west; and, therefore, it is seldom necessary here to give quinine in such large doses. But, as far as the propriety of exhibiting it, *while the fever is on*, is concerned, I think there is no question. I have given it in ten-grain doses, and frequently in doses of five grains every hour, with

such marked benefit as to leave no doubt on my mind that it is not only the best, but in some cases the only efficient treatment. There is, unfortunately, a great prejudice in the profession against what many call "heroic" doses of quinine, in the treatment of marsh fevers—a prejudice, which enlarged experience in the management of these affections can alone remove.

Since the time of the celebrated Radcliffe, the free use of mercurials in miasmatic fevers has been an almost universal practice. While, therefore, I am far from desiring to discard altogether a remedy whose beneficial use is attested by many distinguished men, I cannot but believe that in intermittent and remittent fevers, *uncomplicated with inflammation*, mercury is too often given to an unnecessary and injurious extent. In this section of country, a majority of physicians have an unquestionable dislike to giving quinine, except during complete apyrexia, and with such the practice of treating fevers with mercury, until ptyalism supervenes, is extremely common. This practice is unphilosophical, unless those who pursue it hold to the homœopathic motto, *similia similibus curantur*, for the morbific agent which engenders miasmatic fevers, and mercurials produce the same pathological alteration of the blood—*they render its fibrine less abundant, and thus destroy its coagulability*. To give mercury, then, in idiopathic fever, is but to hasten the end to which the fever naturally tends.

There is a variety of miasmatic fever, occurring chiefly among children between two and seven years, which is characterized by shorter remissions, and more gastric irritation, that is usually found in the more idiopathic form of the disease and which is sometimes extremely difficult to manage. The appetite is whimsical, the tongue pointed and red at the edges; the eyes have a watery and heavy look; the bowels are frequently loose, the digestions being yellow, and sometimes brownish and offensive. There is a well-marked remission every morning, though its duration is brief; and the patient is restless and irritable during the fever. The thirst is not very great, nor is nausea very common. There is more or less tympanitis, especially just prior to the exacerbation of fever. In the management of such cases, I have found quinine very offensive to the stomach, being rejected as soon as it is swallowed. This effect follows even if the taste of the medicine be entirely disguised, by giving it in the form of pill. When retained, however, it will often put a stop to the symptoms for a day or two, when they will almost invariably return. I have found the ol. terebinthinæ in combination with hydrargyrum cum cretâ very serviceable in this form of fever. It is given thus:—

R. Hydrarg. c. cretâ, ʒj.
Ol. terebinth. f. ʒj.
Acaciæ, gr. xxx.
Acquae f. ℥ij.
M. S. A teaspoonful every two hours.

In some cases where every remedy had failed, the application of a blister to the epigastrium produced a complete cure.

ART. 3.—*Report on the use of Quinine in Miasmatic Diseases.* By W. H. VAN BUREN, M.D.., Professor of Surgery, University of New York.

(*Medical Examiner*, Feb. 1846.)

The following 'Report,' now published by permission of the Surgeon-General of the Army, to whom it was originally made, was furnished in compliance with instructions issued to the Officers of the Medical Staff, in the month of August, 1843.

The author observes, that his present experience in the use of the medicine suggests the following mode of practice, which, since its adoption, he has had no occasion to change; on the contrary, its superiority has been uniformly more strongly confirmed.

In *Simple Intermittents* of every variety, he is in the habit of administering 15 to 20 grains of quinine, most generally in solution, from six to twelve hours before the chill is expected; always making allowance, when necessary, for its *anticipation*. In *pure ague and fever*, when the derangement of the nervous system has as yet produced no *visceral* or *glandular* disease, he uses no "*preparatory medicines*," believing that thus far the disease lies wholly in the nervous system,—that other symptoms are but consequences of its irregular action,—and, that "preparatory medicines," when not positively indicated, are not only unnecessary, but decidedly injurious.

In about two thirds of the cases thus treated, he has found it unnecessary to *repeat* the dose in order to effect a cure, and is unable to remember an instance in which a *third* dose has been required. He believes that when the proper moment can be exactly ascertained in which to administer 15 or 20 grains of quinine, one dose will prevent the recurrence of a chill in ninety out of a hundred cases, and that when the disease is thus cut short on its first attack, it is far less liable to recur at a future period.

In *Remittent Fevers*, he is in the habit of combating the paroxysms according to the indications in each case,—rarely by venesection or emetics, most frequently by mercurial cathartics, acidulated drinks, and the *free use of cold water to the surface of the body*. The moment that the skin becomes moist, without particular regard to the state of the pulse, he gives from 20 to 25 grains of quinine, according to the severity of the case, the constitution of the patient, and the general type of disease at the time, and repeats it in from four to eight hours. This treatment will in most cases prevent a return of the paroxysm. The most effectual remedies for *gastric irritability* he has found to be a strong infusion of capsicum, and *ice* held in the mouth, or swallowed in bulk. It has been necessary, however, to administer the quinine whilst ten or twelve cups were drawing on the abdomen, in order to prevent its rejection by the stomach, and, in other cases, to secure its action by the application of 60 or 80 grains to a blistered surface on the epigastrium. If the doses above mentioned can be retained, and absorbed by the stomach, the fever cannot continue.

In *Malignant Intermittents*,—the "*Fièvres Intermittentes Pernicieuses*,"

of Alibert,—the prompt and decided use of the remedy in the same doses, is successful with equal certainty. In these cases, however, it is necessary to keep up its action for a somewhat longer period than in simple remittents.

In what is called "Congestive Fever," which most frequently occurs as a *Malignant Intermittent of one paroxysm*, he has no precise limit to the use of the remedy. Forty grains, if retained and digested by the stomach, will, he believes, secure its full effect for a longer or shorter period; and generally in ten or fifteen hours reaction comes on—if at all. With nerve and decision in the employment of quinine in full doses, in connexion with stimulants (brandy and capsicum), and external stimulants (of which the best are aq. ammonia fort. and the decoction of cantharides in sp. terebinth.), used with the necessary energy and perseverance—he considers this disease—the most severe of an endemic form that occurs in our Southern country—to be perfectly manageable when taken in time by a physician of judgment. Calomel is valuable as a cathartic, and, in certain cases, to allay gastric irritability;—but clysters, especially those of a stimulating character, and if necessary containing quinine, act more rapidly, and in these cases there is rarely time to secure the specific effects of mercury.

In Yellow Fever he has never seen any decided and permanent good effects from the use of quinine—though it was employed in doses of every size in a number of cases, in the autumn of 1841. The trial of the medicine at that time was not decisive—but the results were far from satisfactory. With regard to the pathology of this disease, he has been induced to believe that its *ultimate cause* induces a peculiar action of the liver, which results in a vitiated secretion from this organ, of the character of an animal poison; this, passing into the blood, produces an *alteration of that fluid*, and, as a consequence, of all the secretions, and thus gives rise to the peculiar condition of the nervous system which characterizes the disease. When the kidneys cease to act, and the *urea* is no longer eliminated from the blood, it acts upon the brain as a narcotic poison, as is proved by its effects where the chemical preparation is taken into the stomach. Why may not the elements of the bile, chemically altered, produce an analogous effect? If it were not unconnected with the subject, further evidence might be adduced, which would, he thinks, give some plausibility to this view of the pathology of Yellow Fever; he has introduced it here to explain, if possible, why quinine does not act as energetically in this as in other forms of fever of a similar character: it is, that the primary seat of the disease in Yellow Fever is the *blood*—and not the nervous system, as in miasmatic diseases—derangement of the nervous system being the *consequence*, and not the *cause* of the disease.

In enlargement of the spleen, as a sequela of Intermittent Fevers, the reporter has never yet failed to effect a cure by large doses of quinine, even in cases where other treatment had failed.

In *Masked Intermittents*, he is also convinced of the superior utility of large doses of the medicine. Intermittent hemicrania is the most obstinate form of miasmatic disease that he has encountered.

He has used the sulphate of quinine, experimentally, to a limited extent, in other forms of disease besides those enumerated: in chronic

hepatitis, epilepsy, amaurosis, and mania—but without any results of interest. He is prepared to believe, however, that all functional diseases of the nervous system are to some extent under the influence of this medicine, and that it will *cure* any disease of an intermittent character.

He has given 20 grains of quinine on two occasions during *frank open fever*, with hot skin and excited pulse—when alarmed at its long continuance, and fearful that it would result in congestion; in both cases it acted apparently as a *nervous and arterial sedative*, being followed by relaxation of the skin and falling of the pulse to the natural standard.

He has never seen bad effects from the use of large doses of the medicine, in any stage of fever, though he is not prepared to use it indiscriminately where there is cerebral excitement.

In smaller doses, under the same circumstances, he has been repeatedly impressed with the idea that it increased the febrile symptoms, and failed in producing a sedative or equalizing effect.

He believes that a full dose of quinine is from 15 to 25 grains, according to the impressibility of the patient; and that, as is the case with many other medicines, the effect of a smaller, or fractional dose, is very different from that of a full dose; and that, where the full impression of the remedy is required, it is more economical, as well as more philosophical, and far more likely to be immediately successful, to administer ℈j at once at the proper time than gr. ij. every two hours, for three or four days, or longer.

In two instances, after administering grs. xx. of quinine, too late, apparently, to prevent the access of a paroxysm of fever, he has witnessed a singular condition of the system, which seemed like a struggle between the remedy and the disease for mastery over the nervous system; there was great oppression of breathing, restlessness, and nervous depression; trembling and chattering of the teeth, unaccompanied by any sensation of coldness, and suppressed and struggling pulse. In both of these cases—the one a healthy lady with one previous chill, the other a soldier after one paroxysm of simple remittent—the remedy apparently gained the victory after the lapse of half an hour, and no fever followed; from which circumstance he infers that the symptoms enumerated did not constitute a chill. A repetition of the dose was not required in either case, and they both convalesced without a bad symptom.

He has seen one case of *partial loss of hearing* which followed the use of *two grain* doses of quinine for a period of two weeks; one case of tinnitus aurium, of eleven months' standing, now under treatment, and apparently incurable, attributed to the same cause; and he has also under treatment a case of amblyopia, of three weeks' duration, and quite intractable, which followed the use of *four grain doses* every four hours for a week, for malignant intermittent fever, before his arrival at his post.

He has never yet witnessed any of these results from the use of large doses, and, in fact, with the exception of the temporary aggravation of a chronic dysentery, he has never seen any bad effects from them. In dysenteric cases, he attributes the aggravation of the symptoms more to the sulphuric acid of the solution than to the sulphate of quinine; and accordingly uses the medicine, when required in such cases, in the form of pills, combined with sulphate of morphine.

With regard to the *modus operandi* of quinine, he believes that in fractional doses (from gr. ss. to gr. xv.) it acts upon the nervous system as a *direct and peculiar stimulant*, with an ultimate paroxysmal effect. In full doses (gr. xv. and upwards), its action varies with the condition of the system; in the dynamic stage of miasmatic fevers his impression is that its immediate action is that of a *sedative;* in the adynamic stage of fevers, or in other words, after the resistance of vitality has been overcome by the cause of the disease, either entirely and permanently, as in congestive fever, or temporarily, as in remittents or intermittents, the action of the remedy in large doses, when it produces any effect, is, uniformly and certainly, to restore a healthy tone to the nervous system, and to *stimulate specifically the powers of life* in the most decided manner. Its effects upon the circulation he believes to be altogether *indirect*, one of the consequences of its *equalizing* influence on the human system, and this rationale explains in some degree its varying action in different states of the system.

The action of the sulphate of quinine, and still more of the supersulphate, seems to be uniformly slightly irritating to the mucous lining of the intestines, more particularly of the colon and rectum. Beyond this he has no evidence of its unfavorable influence, as has been asserted, upon diseases of the bowels. On the contrary, it has so happened that since the frequent use of large doses of the medicine, he has encountered fewer and less severe cases of dysentery than formerly.

Of the qualities of the sulphate of quinine as a *pure tonic in small doses*, he has received an unfavorable impression, in the debility following diseases of this climate. Used in this manner he believes that it acts only as a direct and peculiar permanent stimulant, and that it has a greater tendency to induce general irritability of the system than other and more simple vegetable tonics, with a decidedly unpleasant effect in many instances upon the mucous membrane of the intestines and the brain.

He has never recognized its action upon the liver.

After stopping an intermittent fever by a full dose of quinine, unless the system requires decided support, he is not in the habit generally of administering tonics; and he has never witnessed more satisfactory cases of prompt and uninterrupted convalescence, than while pursuing this plan of practice.

According to his observations the unpleasant effects of quinine, in producing ringing in the ears, &c. &c., are more constant and severe in proportion to the smallness of the dose employed. He has seen many patients excessively annoyed by doses of 2 grains, frequently repeated, who have afterwards, under similar circumstances, taken 20 grains with comparative impunity. The medicine, in solution, has also a greater tendency to produce these symptoms than in pilular form; still the solution is more immediate and efficient in its action.

## SECT. II. DISEASES OF THE NERVOUS SYSTEM.

### ART. 4.—*On the Treatment of Acute Mania.* By JOHN CONOLLY, M.D.

(*Lancet*, Nov. 1845.)

In a valuable course of clinical lectures upon the principal forms of insanity, Dr. Conolly remarks, that in a great proportion of cases of acute mania, no bodily disease can be discovered excepting that of the brain, and that of this the nature is not explained by the symptoms. The white tongue, quick pulse, &c., as well as the disordered mental faculties are, he presumes, the result of irritation of the substance of the brain itself, or of its membranes, which irritation may subside spontaneously, or terminate in inflammation and effusion, or other and more permanent alterations. In some cases, he states that the indications for medical treatment are so few, that even the application of leeches and other mild remedies are not only uncalled for, but may be mischievous. These cases have a natural tendency to subside within a certain period, generally, according to Esquirol, within a month. Within this period Dr. Conolly particularly urges the necessity of strict attention to the patient's diet and other regimen both bodily and mental, and the avoidance of active therapeutic measures. Especially does he exclaim against severity, restraint, and rough treatment, not only as positively injurious, but as circumstances which prevent our being able to discover the first dawning of the recovery which may be expected in a few weeks after the commencement of the attack. These methods, as he observes, conduce to indolence on the part of the attendant, and the convalescence of the patient is unnoticed, and fades amidst vexation and helplessness, perhaps never to revive. The justice of these remarks is aptly illustrated by the detail of cases, one of which shows the advantage of the lecturer's humane and scientific treatment, the other the mischievous consequences of the barbarity which was generally pursued.

In those instances in which gastric symptoms exist as a part of the malady, and evidenced by vomiting and diarrhœa, red tongue, depraved appetite, &c., peculiar care is demanded. The gastric disturbance, observes Dr. Conolly, may be partly ascribed to moral causes, and resembles that which is occasionally induced by imprisonment. These cases are exasperated by restraint, but readily yield to the following system of treatment. "After leeches have been applied to the epigastrium, small blisters are sometimes serviceable; and the exhausting diarrhœa may be effectually checked by the application of the spiritus terebenthinæ to the abdomen. The warm bath helps to allay general irritation; the diet should be chiefly farinaceous at first, but subsequently fish, boiled mutton, &c., may be allowed; solid food is better than soups or broths; vegetables are not desirable, and a little porter or wine may be permitted. When the symptoms are obstinate, a few grains of the compound calomel pill, with the fourth of a grain of the watery extract of opium, may be given every other night. A draught of infusion of cascarilla, with half a drachm

of bicarbonate of potash, may be given twice a day, in some cases with the addition of hydrocyanic acid. It is of importance also that the patient should be much out of doors in fine weather and inhabit well ventilated apartments."

As, however, many cases will be met with in which great anxiety is induced by the violence of the patient, and his unceasing attempts to injure himself and others, it is interesting to know what is the line of treatment recommended by Dr. Conolly. It is this, never to interfere unnecessarily. The word "punish," he observes, is not permitted to be pronounced before the patients committed to his charge. When the brain is excited, the violent gesticulations, which are its natural consequence, relieve it. For this reason the patient is permitted, within reasonable limits, to indulge himself in actions not positively detrimental. No mechanical restraints are placed upon him, but he is vigilantly watched. All means of mischief are removed, the windows and doors are made secure without the air of imprisonment. In some cases, it is not advisable to let a patient labouring under acute mania remain in the presence of others, as he is irritated by them. In such a case seclusion is necessary; Dr. Conolly simply puts him into his bed-room, or into a padded room if unusually violent, and leaves him. The seclusion is continued according to circumstances, from one to several hours, but seldom for the whole day.

But, says Dr. Conolly, as when pursuing the simply medical treatment of acute mania, attention must be given to measures of security, so, on the other hand, when these are completed, you must consider whether further medical treatment is likely to be serviceable. When the scalp is hotter than usual, the repetition of leeches is always of some service, and the application of blisters or irritating ointments to the scalp. In many cases relief will be obtained by simply shaving the head, and applying cold by means of blisters or the ice-cap. But of all means of subduing excitement, Dr. Conolly prefers the shower-bath. It has, he believes, an effect upon the mind as well as the body, and as it will be disliked, he cautions us to inform the patient that it is employed as a remedy, not as a punishment.

On the subject of the value of sedative medicines in acute mania, Dr. Conolly differs from many writers, in believing that they are of very limited usefulness. He states "that there are very few cases of acute mania in which sedatives are advantageous, and that the most violent cases are the least under their control." In chronic cases, however, he thinks them highly serviceable, and in some acute cases in which there is not great activity of the cerebral circulation; he does not appear to have those preferences for certain medicines of this class which are sometimes observed, but considers them each of value in particular instances. With some patients laudanum acts with certainty, others are best suited by the liquor opii, others by morphine. The tincture of hyoscyamus is regarded by him as a valuable medicine in the more violent cases, but the ordinary dose should be as much as two drachms. Indeed, says Dr. Conolly, whatever be the sedative employed, the dose should be large. Less than a grain of morphine will be of no use; and laudanum requires to be given in doses of a drachm, or at least of forty drops. At the same time he considers it prudent to apply cold to the head.

Of the Indian hemp Dr. Conolly is inclined to entertain a favorable

opinion, but thinks that it will chiefly be of use in chronic forms of mania. The dose should be two drachms of the tincture, or one or two grains of the extract.

In mania which supervenes with febrile symptoms, the patient being feeble and restless, and at the same time violent, with a brown coated tongue, all sedatives appear to Dr. Conolly to be useless, and, in some cases, even to add to the excitement. Sleeplessness, in some cases, will give way to a draught of ale or porter at bedtime, when narcotics fail to produce it.

When tranquillity has been obtained by proper means in acute mania, it becomes essential to the cure to ascertain if there be any bodily disorder upon which it depends. In young women, a deranged condition of the uterine functions will frequently be found to exist, and is generally connected with an obstinate state of bowels. In these cases, Dr. Conolly relies upon a combination of sulphate of iron with aloes, and the occasional application of leeches to the pubes. In women also more advanced in life, the cessation of the catamenia is not unfrequently followed by mental disturbance, of which dread and despondency are the most frequent forms, but which are often accompanied with great excitement. These cases are always obstinate, and, in many instances, incurable.

The persistence of delirium after the subsidence of fever, is generally an unfavorable form of disease; of this several cases are adduced by the lecturer. A milder form of delirium sometimes ensues during convalescence from fever, which is curable, and appears to depend upon exhaustion of the brain.

[On the subject of the suicidal propensity which is often one of the more prominent symptoms of acute mania, the writing of Dr. Conolly is particularly striking and energetic; and as it is a subject upon which he in the first instance met with little short of persecution, in his noble endeavours to plead the cause of humanity and kind treatment as a substitute for the selfish brutality, at the time the characteristic of many lunatic asylums, we should feel it almost an injustice to himself as well as to our readers, to present his observations in other than his own forcible language.]

One of the singularities of character in a human being is a disposition, under various provocations, to destroy himself. When the mind is decidedly diseased, this tendency is extremely common, and becomes, in some cases, a passion; but, like other passions, paroxysmal, temporary, and always possible to be recovered from. It is most commonly associated with melancholia, but maniacal excitement is usually mingled with such cases, especially when the suicidal attempts are made; and in cases of recent mania, there are often impulses to self-destruction, either in obedience to some supposed command, or without any previous determination or distinct reason. In all these cases it seems to have been once assumed that restraint was the only preventive. The melancholy figures of patients must still remain in the memory of all who have visited the old asylums, walking in some secluded alley, or lonely yard, or desolate out-house, tied up in strait-waistcoats, or with their hands bound in a hard leather muff, and turning away with sullen aspect from those who pointed them out as suicidal, as if, being so specified, their unhappy condition excluded hope, and made further comment and further thought unnecessary. At length, however, it is conceded, by those most acquainted with the insane, that restraint,

so far from being a security against suicide, is an incentive to it. In the course of every year we receive many patients who have made attempts to destroy themselves, and who retain the disposition to do so; but since the abolition of the use of restraints at Hanwell, in September, 1839, not one patient has died by suicide; many patients have attempted it in many different ways, but all have hitherto been baffled in the attempt, solely by the arrangements of the asylum, and the vigilance of the attendants, until, under benign influences, and by being made comfortable, the patients have lost the propensity. Still, I always speak on this subject with all diffidence, always feeling that the events of the next half hour may, in so large an institution, filled with the insane, produce an example of a fearful kind. Against all ordinary suicidal attempts and accidents, all public asylums possess certain provisions; the window-shutters are secure, the windows do not open widely, or have wire-guards affixed to them, and the fireplaces are guarded. I must observe, however, that unless the medical officers have every alteration in the building referred to them, they will frequently find their patients exposed to new and obvious dangers; and unless they are consulted in the choice of attendants, they cannot justly be considered accountable for the safety of the suicidal patients at any time. The simplest and most effectual means of security is that of never allowing a suicidal patient to be left alone. Pursuing all the usual treatment of acute mania, (for I am now speaking of such cases,) we take care that by day the patient shall either be constantly in the presence of the attendants, or so near them, and so guarded and watched, that a successful attempt at self-destruction is scarcely possible. It is even useful to impress on the mind of the patient that all his attempts to hurt himself will be in vain; and to profess that we are never baffled by those who have such a propensity. Some of those apparently resolute on the subject, and really would destroy themselves if permitted, have a painful consciousness of needing protection, and are evidently anxious to be taken care of. Others assure us, that, do what we may, they will deceive our care; but they do not contrive to do so. The patient, if not violent, sleeps at night in a room containing other patients, some of whom are intelligent enough to give the alarm in case of need. If the violence of the patient makes that unsafe, he is placed in one of the padded rooms, where there are no means of suspension, and where the window is secured, and the whole floor is a bed. In both cases, all strings, garters, handkerchiefs, knives, scissors, &c., are carefully removed; and when the patient would tear up sheets, blankets, counterpanes, or a night-dress, in order to hang or strangle himself, the sheets and counterpanes are taken away, and the blankets are supplied sewed up in a strong ticking case; and a dress of the same, or of some strong materials, put on for the night. The patient's ordinary clothes are always removed from the bed-room. The patient is frequently visited by the night attendants, and generally placed in a room near or in the infirmaries, or wherever the night-attendants sit up. If that is not practicable, extra attendants sit up, in order that the watching may be efficient. There are patients in whom the suicidal tendency comes on in paroxysms, during which the utmost vigilance is necessary, perhaps for ten days or a fortnight.

All such cases create extreme anxiety in private practice; and I always advise, in every case of insanity in a private residence that the windows

should be so secured as only to open a very little way, and that all suggestive means of suicide should be avoided as much as possible. The suicidal feeling is so generally in excess on awaking in the morning, that all attendants on patients should be especially warned on no account to leave the room before the patient is fully dressed and ready to come down stairs. The absence of a few minutes has, in many instances, been fatal. So, also, bell-ropes, strings hanging down from curtain-rods, a knife, a razor, a bottle of laudanum, an open window, seem suddenly to rouse the propensity of self-destruction, and consequently should never be presented to the patient's view. In these cases nothing should be left to chance; and I think it is an error, for the mere sake of showing how much confidence may be placed in the insane, to leave windows and fires unguarded, when a patient has shown a disposition to suicide. I am perfectly satisfied, that by long-continued care, and by making the patient's life comfortable, and avoiding everything that can give strength to morbid impressions of being doomed to punishment, and by attention to the bodily health, the suicidal tendency is often entirely removable.

That cases may be managed, even in private practice, in which the most resolute disposition of self-destruction exists, I feel no doubt, provided proper attendants can be engaged; without that precaution there is no safety out of an asylum. And it should be remembered, that although some suicidal patients attempt suicide in one way only, as by hanging only, or by taking poison only, others promptly avail themselves of all opportunities of death—will throw themselves from a window, cut their throats with a knife, or razor, or scissors, open their veins with glass, beat their heads against a wall, throw themselves down stairs, swallow pins and needles, or a whole box of pills, take poison, drown themselves, hang themselves, starve themselves to death, trying all methods in turn.

Such instances are most common in melancholic patients, and it is long before improvement takes place. I have known several unfortunate examples, in private houses, of the danger of leaving them alone, even for a few minutes. Our strong dresses, which can scarcely be torn into shreds, and our padded rooms, in which there is nothing to aid the patient's unhappy desire, are, in these painful cases, of infinite service; and some contrivances, resembling them, must be adopted, if such patients are not permitted to be removed to an asylum. But neither in an asylum nor in a private house must these means be considered as rendering watching and care by night and day unnecessary. I do not mention restraints among means of security—I have no dependence upon them; and if used as substitutes for superintendence, they will be worse than useless.

Refusal of food is a method of self-destruction productive of great anxiety to the practitioner; but, with rare exceptions, I do not think that the forcible means formerly so often resorted to, in conjunction with the use of restraints, were attended with ultimate advantage. In consequence of an inquest having been held in this asylum, five years ago, on a male patient who was pronounced by the jury to have died in consequence of refusing food, I was induced to look carefully through the old records of the asylum, and was struck with the circumstance, that almost every patient to whom food had been forcibly administered had

died within a few days or weeks of such means being resorted to. I do not mean to conclude that they died in consequence of the application, although I have reason to suspect that such was sometimes the case, but that the patients were in a hopeless state, of which one of the symptoms was an utter disinclination for food. No distinction seems to have been made between the cases in which food was refused from this natural cause, and those in which it was refused on account of some delusion, or with a suicidal intent.

In the first onset of mania, refusal of food is by no means uncommon; and it regularly comes on with every paroxysm in some chronic cases. It is seldom continued for many successive days in either form of malady; but there are cases in which it is more prolonged. Where it is the result of delusion or determination to die, it may be persevered in for an alarming length of time. Forcible means should evidently not be resorted to in all the different cases, without regard to the causes on which the symptom depends. If sometimes necessary, such forcible means are often superfluous, and certainly sometimes hurtful and dangerous. During the last six years, we must have had, at least, fifty instances of temporary refusal of food. Instrumental means have not been resorted to in more, I think, than half a dozen cases; and in one of these, in which the recollection of a former inquest compelled me to sanction its employment, I am convinced that the effects were pernicious. For three entire years it has now not been found necessary, in any one instance, on either the male or the female side of the asylum. It is very probable that refusal of food may be less difficult to overcome among the poor than among the rich, the temptation of good food being less easily resisted; but I believe the more general explanation to have been that no pains have been spared to overcome the repugnance, and to avoid resorting to force.

W. A——, in male ward No. 9, occasionally refuses food in his maniacal paroxysms; and I have known him, when talking loudly, violently, even abusively, suddenly answer a question as to what food he would wish to have, and name some favorite dish, supplying which has removed all immediate difficulty. In another case, a patient obstinately refused food when offered to him; but asked for some when it was partaken of in his presence without his being invited to share it. In many cases, offering some variety of food has been successful, and in some, long and patient persuasion has had a good effect at last. It is desirable in all such cases to bring supplies of food at regular hours, and as often as every four hours; a patient will then sometimes take it to avoid the annoyance of such frequently repeated persuasions.

Nothing, however, is more distinct than the proper treatment of cases in which food is refused in consequence of some delusion, and that of the greater number of such cases, especially in acute mania, in which it is generally associated with bodily disorder, the removal of which must precede a return of the natural desire for food. Nor can anything be less becoming in a medical practitioner than to forget that even in a lunatic asylum he practises the art of cure, or to fancy himself called upon to exercise brute force because a sick man will not eat. You could not long frequent the wards of an asylum without seeing some instructive illustration, particularly, but not exclusively, in recent cases. Patients who are emaciated to the last degree, feeble and sinking, yet restless and refusing

to lie down, and struggling to wander, they know not whither, will also refrain from taking food altogether. In this desperate disturbance of the whole frame, the practice, which I was once reproached for refraining from, was, to overpower the frantic man by violent means, to bind him tightly in a strait-waistcoat, to deprive him of all power of resistance, and then to wrench open his jaws by this iron screw-gag, and to force into his unwilling stomach a quantity of food, which he could not digest. In milder cases, a better plan was that of introducing, by very patient efforts, a cylindrical piece of wood between the teeth across the mouth, the wood being perforated, to permit the tube of the stomach-pump to pass through. In some obstinate cases the food was introduced by a tube passed through the nostrils. These methods were so highly disagreeable to the patients, as to conquer mere obstinacy or delusive determination: even the sight of the stomach-pump was sometimes effectual. I have several times known fluid food given to obstinate patients, as food is often given to reluctant children, by holding the nostrils, and waiting for the opening of the mouth for necessary inspiration—which is delayed as long as the patient possibly can delay it, but must take place from time to time. This also is so unpleasant to the patient, as seldom to require many repetitions. But in the cases dependent on severe bodily disorder, the introduction was useless and cruel, as well as difficult and dangerous. I know that patients have sunk immediately after the struggle. A medical man not blinded by an attachment to restraints and force, will see that in the cases of which I speak such forcible attempts are not indicated, and are not justifiable. Take the first opportunity that occurs of examining such a case. In every instance you will probably find some indication of gastric disorder, and often a total inactivity of the bowels, the relief of which by purgatives will restore the desire for food. When medicine is obstinately refused, if you succeed in putting two drops of croton-oil on the tongue, the bowels will usually act freely in a short time, after which food will be taken. In other patients you will find the tongue red, or thickly coated; the bowels disordered; the patient feverish; so feeble, as scarcely to be able to walk; and so wilful and violent that it is difficult to keep him out of danger, and necessary to confine him to a padded room. Various attentions are here required, to improve, if possible, the state of the digestive organs, and abate the fever: leeches to the epigastrium, blisters, demulcents, mild opiates, and diaphoretics, a warm bath, anything rather than the strait-waistcoat and the gag. In still severer cases, the pale and haggard face, the sunken eyes, the rapid pulse, the emaciated frame, the wild, unconscious manner of the sufferer, all declare the approach of death from chronic and complicated disease. The insurmountable aversion to swallowing food is the result of deep and terrible disorder. If such a case presented itself to you in a general hospital, force would be the last thing that you would think of. In asylums, it used to be the first thing thought of, and the only thing.

When visitors go round the asylum, they often ask what we do with those patients who would beat their heads against the wall, or tear themselves to pieces. Our reply is, that where patients are properly treated, not one in five hundred would do anything of the kind. Yet for that one case we must be prepared. The padded rooms are the best preventive against any injury being done by the patient striking his head against

the walls. The whole floor of these rooms is a bed; the four sides of the room, including the door, are thickly padded with ticking, inclosing coir (coca-nut fibre) to a height above that readily reached by the hands, the padding being fixed in a frame, easily removable by a workman, in several portions, when removal is required for repair, but not capable of being torn down by mere violence. When placed in these rooms, the patients cease to strike their heads against the wall, or they can scarcely hurt themselves if they do. Binding the hands and feet, or the body, is quite unnecessary; and if resorted to would only lead to exhausting struggles, or fierce vociferations. I have seen not a few patients admitted in a state of unusual excitement, who would for a time roll over and over, or throw themselves about, head over heels, and who, being safely placed in a padded room, were soon improved by suitable medical treatment.

I think it most important to observe, that in every case of this kind the patient should be as soon and as much as possible in the open air. Our business is not merely to prevent the patient from striking his head against the wall, but to remove the irritability which makes him wish to do so. Restraint does not effect this; it merely prevents his hurting his head, and this we do much better by padding the walls. When no bodily restraint is resorted to, and the patient is subjected to appropriate medical treatment, and has his thoughts engaged by walking out, I am quite sure that the peculiar excitement of these rare cases is very transient. So long as it lasts, it is extremely troublesome, and calls for constant attention; but this trouble and attention are the remedies which we expect to be supplied in an asylum for the insane. Our business is to remedy these symptoms of cerebral disorder, just as in a general hospital remedies are administered for the relief of bodily disease. Merely to suppress violence is not wiser than it would be merely to suppress convulsions or pain. In the case of bodily disease we should try to remove the cause of the convulsion or pain, and in mental disease the cause of the violence.

If, in the case of a patient so frantic as to tear or bite his flesh, we have no better recourse than to tie or chain his arms, legs, body, neck, and head, the case is desperate indeed; for it is impossible to devise any restraint, however heavy and complicated, that can quite prevent such actions. But if we clear our minds of all these violent methods, we shall find that all difficulty may be removed by a well made, well padded, and well secured dress, and by a pair of soft gloves without divisions for the fingers and thumb; so as to prevent the penetration of the teeth, and the mischief of prehensile movements. All such cases, however, are rare, and where they exist are rather the product of miserable confinement, monotony, and neglect, than of the disease. The propensities, also, are seldom of long continuance, and are generally checked or removed by some sedative medicine and warm baths. When the proper medical relief of such cases is neglected, and the cause of these nervous tricks unregarded, the patient is condemned to some wretched form of restraint, and often for months; a barbarity excusable in ignorant persons having the charge of them, but disgraceful in a medical superintendent.

[The lecturer concludes the treatment of acute mania with the following interesting observations:]

"You will find that whilst some cases have a tendency to spontaneous cure, others will present the phenomena of restlessness and violence for many months; the attack not appearing to be shortened by any mode of treatment that we can adopt. In such cases medicines and all the auxiliary means that can be employed scarcely exercise even a modifying influence on the malady, and the patient continues apparently irrational night and day. But during all this time we shall find, if amendment at length takes place, that the patient has appreciated our conduct, and has been sensible of our kindness or our irritability; and that if we have been uniformly considerate, not only has much danger been averted during the course of the malady, but that the resulting content and good humour of the patient have laid the best foundation for a steady, progressive, and happy recovery."

## Art. 5.—*On the Nature and Treatment of Delirium Tremens.*

By C. J. B. Williams, M.D., F.R.S.

(*Medical Gazette*, Oct. 10, 1845.)

[Delirium tremens is defined by Dr. Williams to be a disease of excitement of the nervous system, leading to exhaustion, and requiring chiefly the use of composing remedies. While admitting this, however, he deprecates the loose way of speaking not uncommonly heard in reference to this disease,—that "give plenty of opium, produce sleep, and you cure the disease." He shows that though this may be true in many cases, the rule is nevertheless not absolute; and the reason of this is, that the excitement of the nervous system does not depend upon the loss of sleep alone. There is, he observes, an additional cause, which is too commonly lost sight of, namely, inanition. The drunkard, though always drinking, eats but little, his appetite being more or less completely destroyed. Thus the immediate exciting cause of the disease operates upon a frame depressed by want of proper nutriment. Taking this circumstance into consideration, Dr. Williams lays down three indications of treatment.]

"First, to compose that undue excitement of the nervous system which prevails, and which exhausts the other powers. This is done by opium and other narcotics. Secondly, to restore the functions which are failing, and which have already been so much exhausted that life may be in jeopardy; although sleep is needed, yet strength is required to support life; and although sleep be obtained, perhaps the excito-motory system may be so exhausted that it may prove the sleep of death, or it may be a reduction to a state of sinking. Under such circumstances, and they often occur in extreme cases of exhaustion in connexion with delirium tremens, it becomes a leading indication to support the system by stimulants, and if possible by food. But there is a third indication which should never be lost sight of in the treatment of this disease; that is, to purify the system from the poison which it contains. If it be a case of recent debauch, there is an alcoholic stimulant in the system, and the longer it remains the more mischief it will do. The body is a source of poison to itself, and if the vital powers are greatly reduced in their energy, the process of self-purification

will not go on; the excretory functions are improperly performed; the urine is no longer secreted; urea accumulates; the bile probably accumulates in the same manner; and the result of this, in an extreme degree, is a poisoning of the system. It is therefore a leading object to purify the system by means of an increase of the secretions, and this is generally done by means of purgative and diuretic medicines."

[The lecturer followed up the above remarks by reference to three or four cases exemplifying the different aspects which the disease is liable to assume. In the first case, that of a confirmed drunkard with enlarged liver, and suffering under exhaustion from long want of appetite, the Indian hemp was given with the intention of inducing sleep without destroying the appetite, an effect which opium is apt to induce. The result was highly satisfactory. The second case was also that of a confirmed drunkard, but a younger man, and the delirium followed close upon a debauch. In this case the third indication was an object of importance as well as the first, and he accordingly was treated with large doses of laudanum, and saline draughts with senna mixture. Two other cases are given in which the delirium was accompanied by so much manifest arterial action as to demand depletion.]

---

In the treatment of delirium tremens, Dr. Macgregor* usually orders a drachm of laudanum, and one grain of tartar emetic, to be given every hour until sleep be obtained, premising in most cases a turpentine enema. He advises also that the head should be shaved and blistered, the surface being afterwards dressed with a stimulating ointment. He does not approve of wine or spirits. [It must be stated that this writer is speaking of the disease as it occurs in India.] When there is great irritability of the stomach, he has found "the exhibition of five drops of croton oil, either alone or combined with opium, useful in restraining the nausea. After the delirious symptoms have entirely subsided, purgatives and tonics will be necessary."

*Medico-Chirur. Review*, April, 1846, p. 375.

## Art. 6.—*On the Nature and Treatment of the Epileptic Seizure.*

By C. J. B. Williams, M.D., F.R.S.

(*Medical Gazette*, Nov. 14, *et seq.* 1846.)

[In a series of clinical lectures by this eminent physician, published in the 'Medical Gazette,' the various forms of epilepsy are aptly illustrated. Cases are commented upon in which the frequent recurrence of the paroxysms, together with the pre-existence of more or less stupor after the recovery of consciousness, led to the belief that their exciting cause was to be found in some form of organic cerebral disease; others are also mentioned in which the convulsive symptoms were equally severe, but their duration was transient, and the return to consciousness perfect. Dr. Williams inquires, what is the condition of the brain in the latter cases? What is the true nature of these fits? His remarks upon this point are as follows:—]

* Practical Observations on the Diseases of India. Calcutta, 1844.

"In the first place (in these cases) there is suspension of consciousness and volition; this occurs in all the fits, slight and severe; but in the severe fits convulsions are superadded; that is to say, exalted functions of the excito-motory system. These two elements, then, constitute the fits; suspension of the functions of the brain, and excitement of the function of the medulla.

"But how can we account for this interruption to the function of one part of the nervous centres, and exaltation of that of the other? I would ascribe the fits to the mode in which sudden determination of blood to the head modifies the circulation through the nervous centres. It has been observed in experiments on animals that a certain amount of pressure on the brain causes stupor; a greater amount produces convulsions also. This fact is repeatedly observed in hydrocephalic patients. The pressure impedes the circulation through the brain, and thus causes stupor; but the current of blood being stopped from going through the brain, will flow with greater force and rapidity through the cerebellum and medulla, and thus exalt their functions in an inordinate degree. The remarkable anastomosis of arteries in the circle of Willis supplies the channels for this diversion of force; and I cannot but regard this as a wise provision of nature, to secure to the medulla oblongata an adequate supply of blood under the varied circumstances of pressure or altered circulation."

[Dr. Williams combats the opinion of Marshall Hall, that the insensibility in the epileptic convulsion is due to apnœa; this latter symptom being considered by him (Dr. Williams) to be merely an accidental phenomenon, caused by spasm of the glottis. (Dr. M. Hall, as may be remembered, considered closure of the glottis *necessary* for the production of convulsion.) Dr. Williams thus proceeds:]

"Admitting that fits of epilepsy and convulsive hysteria are due to a diversion of the circulation from the brain to the medulla, we see an explanation why they begin and cease so suddenly. Any one who has watched the circulation through the web of a frog's foot, must have perceived that if one of the anastomosing vessels becomes obstructed by any cause, the current takes a circuit the other way as freely as if there were no obstruction; but when this obstruction is removed, then the current suddenly goes back altogether, and restores the part to its natural condition. So it is with the blood-vessels of the brain; when the causes, whatever they may be which have disturbed the circulation in the nervous centres, and thrown the whole impetus of the current upon the spinal system at the expense of the cerebral, are removed, the current suddenly becomes changed—it is restored; the blood passes equally through the brain, the superfluity thrown upon the spinal cord is reduced, and consciousness returns."

That this change in the circulation does in reality attend a paroxysm of epilepsy, is, as Dr. Williams observes, proved by the fact that the paroxysm in these cases is preceded by signs of vascular derangement, such as pulsation of the carotids, and palpitation of the heart, which causes the blood to be propelled with greater force through the vertebral arteries. The immediate cause of the attack may therefore be anything which will derange the circulation, as mental emotion, constrained positions, &c. The subjects in whom these fits are apt to occur are those who present a

high degree of vascular susceptibility, they are often anæmic individuals, in which the blood is unequally distributed, being monopolized by the parts nearest the heart, while the extremities are comparatively cold. "This monopoly of the blood," in the words of the author, "has two effects; if the heart is much excited, it may set the whole blood in the nervous centres in circulation, the consequences being sensorial excitement and delirium; but in other circumstances we find not excitement of the sensorial function, but the reverse, stupor, while the spinal functions become excited to the highest degree. This happens because the determination of blood to the head is insufficient to set the whole mass of blood in the brain in motion; the current flows with increased force by the vertebral arteries to the medulla and base of the brain, hence the convulsions; whilst in the hemispheres the blood is comparatively stagnant, hence the stupor.

"The practical inferences from these observations are, that nervous susceptibility, as it is called, and a tendency to these hysterical or epileptic paroxysms, in the severest forms of these affections, depend on irregularities of the circulation; and the great indication for the cure or prevention of the attacks is the adoption of means which shall equalize the circulation, so as not to allow one part to monopolize blood at the expense of another."

The means by which this is to be affected vary in different cases. In some the determination to the head is so strong, as to threaten inflammation or congestion; in these cases the lecturer observes, that bloodletting may be required. There are, however, exceptional cases; anæmic subjects are those in whom the circulation is most liable to a loss of balance, and in these, of course, depletion is inadmissible. Here the indication is to restore the tone of the system, and to equalize the distribution of the blood. This Dr. Williams accomplishes by the application of cold to the back of the neck, and warmth at the same time to the extremities, by purgative and diuretic medicines, and counter-irritations.

As it is an object in these cases to prevent the palpitation of the heart which is commonly present, Dr. Williams exhibits hydrocyanic acid, digitalis, henbane, and valerian. He observes, that he "does not know of any medicines which are so successful in diminishing epileptic and hysterical convulsions," which they do by tranquillizing the action of the heart, and preventing the violent action, which tends to derange rather than to equalize the circulation.

As Dr. Williams lays great stress upon the palpitation as a cause of the fits, he, as might be expected, enforces the avoidance of all excitement, both moral and physical, which tends to induce that symptom. As a further indication, he endeavours to restore the tone of the blood-vessels generally, by the exhibition of tonic remedies, or such as, without stimulating, appear to promote the tonic contraction of animal fibre. Among these are the nitrate of silver, the sulphates of zinc and copper, &c. But the most potent tonics are to be found among the chalybeates, mineral acids, and quinine. Of these Dr. Williams prefers the muriated tincture of iron, especially where there is great palpitation of the heart with failure of the circulation. The preparations of iron have likewise the effect of restoring the quality of the blood, causing it to abound more in red particles. Hence it is found, that although by hydrocyanic acid, digitalis,

and other means of tranquillizing the circulation, we can but prevent a recurrence of these paroxysms in the first instance, yet we procure a permanent cure most readily by the tonic class of remedies.

### Art. 7.—*Congenital Hydrocephalus successfully treated by the Iodide of Potassium.*

[Several cases are now on record in which the efficacy of iodinic preparations in hydrocephalus is clearly established. The annexed case by Dr. Barbour, of St. Louis, is one of the latest upon record, and in its investigation the following history was elicited:]

The head of the patient at birth was unusually large, and the fontanelles were widely separated, the membranous portions being quite protuberant, and imparting the sensation of fluctuation. The above conditions had existed from birth up to the time of Dr. Barbour's visit, and the child had had frequent convulsions and occasional paralysis. The mother stated that the physicians whom she consulted in England pronounced the case to be dropsy of the brain, and were of the opinion that he could not live. The following was his condition when Dr. Barbour saw him. His head was of monstrous size; the fontanelles were very large, the anterior being at least three inches in diameter, and occupied by a large fluctuating tumour that was elevated about an inch above the level of the cranium, and which appeared to depend not only on fluid in the lateral ventricles, but also on the surface of the brain, as compression with the hand, evidently, very greatly oppressed the brain. The sagittal suture was widely open, and all the bones of the head were quite moveable and compressible. His neck was very remarkably emaciated and slender; so much so, that the weighty head could only be sustained by the shoulder on which it constantly leaned. Chronic diarrhœa also existed, associated with general emaciation, especially of the inferior extremities, tumid abdomen, and irritative fever. He presented, indeed, the most prominent symptoms of marasmus, in connexion with the hydrocephalic condition.

The following is an outline of the treatment Dr. Barbour pursued. With the view of improving the secretions, and restraining the bowels, he administered the following combination: R. hydrarg. c. creta, ʒ ss; pulv. Doveri, grs. xv, made into twelve powders, of which one was given every sixth hour. During the use of the above it became necessary to give mild aperients, occasionally, to relieve the torpor of the bowels. With the view of promoting the absorption of the fluid in the brain, and, at the same time, of improving the general constitution, was administered the following solution: R. Hydriod. potassæ, ʒ ss; aq. distil. ʒ ij; a teaspoonful thrice daily. Dr. Barbour also applied a blister to the poll, and directed frequent affusion of cold water over the head. This course, with but slight variation, was continued for about six weeks, and the result was highly gratifying; the secretions rapidly improved; the irritative fever gradually yielded; the head, day by day, diminished in size; the fontanelles became gradually reduced to a natural size; the convulsions did not recur; and the little boy, having gained flesh, strength, and complexion, left St. Louis, a few days ago, apparently perfectly well. The author observes that his great reliance in the treatment of the above interesting case, was upon the

hydriodate of potassa; and his object in communicating it to the profession is, to contribute additional testimony of the very great value of iodine and its preparations, hoping that some inexperienced or prejudiced reader, who may think it safest to pursue the old beaten track of therapeutics, may profit by it.

*Boston Medical and Surgical Journal*, Jan. 1846.

---

## SECT. III. DISEASES OF THE RESPIRATORY SYSTEM.

### ART. 8.—*Pathology and Treatment of Aphonia.*

By JOHN BISHOP, Surgeon to the Northern Dispensary.

(*Transactions of the Lond. Med. Society*, vol. i, p. 32.)

IT is well known that many persons, especially females of a delicate and relaxed habit, and otherwise of a nervous temperament, become affected with aphonia on being exposed to the cold or humid states of atmosphere. Some labour under loss of voice during the whole winter; whilst in others of a stronger constitution, the malady does not often continue longer than six or eight weeks. In order to ascertain the cause of the extinction of voice under the above-mentioned circumstances, it will be necessary to consider the relation of the functions of the vocal cords to the tissues of which the vocal tube is composed. It is not my present purpose to determine whether the vocal apparatus constitutes a stringed, a reeded, or a wind instrument, or whether it is a combination of all these different kinds of instruments, because this would lead to investigations involving the whole theory of the physiology of the voice. Let us, however, suppose it demonstrable that the action of the glottis in the production of sound resembles that of a reed, connected with a membranous tube; and let us take it for granted, as an established fact, that the membranes surrounding the glottis are susceptible of various degrees of tension and elasticity, enabling them to exercise a certain influence in modifying and controlling the sounds which are generated by the vibratory movements of the vocal ligaments. Let us next examine the effects which would be produced on the glottis, supposing the membranous walls of the larynx and fauces to become relaxed, or inelastic, or to lose their tension. When any stretched membranous surface, such as the head of a drum, (which is well known to be composed of animal skin) is subjected to a very moist state of the air, it becomes relaxed and inelastic; such also appears to be the effect of moisture on the mucous membranes, and several other animal tissues. Now it is found that if we take a reed, and place it in a membranous tube, and cause it to vibrate by passing a current of air over its tongue, the reed will continue to sound as long as the membranes preserve their tension and elasticity; but the moment they are moistened and become relaxed, it ceases to sound, and will not, by any means that we can employ, again produce a sound whilst it is in contact with the moist membranes; but as soon as they become dry, and resume their elasticity, the reed will again yield its sounds as before.

These, then, are the acoustic effects of variations of tension and elasticity in membranes, when placed in juxta-position with a reed, in the manner above described; therefore, as the vocal ligaments are placed under circumstances analogous to those of the reed in the case just mentioned, we can easily perceive why they should lose the power of producing sounds, when the membranes of the vocal tube either lose their elasticity, or cannot acquire from the connected muscles the tension proper to them in their normal condition.

There are several causes, independently of the hygrometric state of the atmosphere, which tend to relax the fauces and soft parts adjacent to the larynx, such as temperature, nervous excitement, and over exertion of the vocal organs. It is well known how rapidly the transition from one state to another takes place in the mucous membranes. No sooner is the surface of these membranes exposed to sudden changes of temperature and moisture, than they begin to secrete the fluid peculiar to them. This secretion tends to clog the vibrating surfaces in contact with the larynx, and often impedes the action of the thyro-arytenoid ligaments. The voice sinks in pitch if the relaxation is only partial, as does a reed by partially moistening the membranous tube in which it is placed. When the mucous membranes which line the vocal tube have received such a shock as to induce inflammatory action, the train of symptoms is altogether different, and cough and irritation supervene. In this case the voice is not extinguished, and the complaint requires a very different kind of treatment. It is not, however, proposed to include this condition, which is of an inflammatory character, in our present inquiry. The degree of mischief produced on the membrane often decreases in proportion as the distance from the respiratory apertures increases; and thus we often find that the nostrils are irritated and relaxed, without the disorder proceeding further. The fauces are next affected; and it is the derangement of these parts, in consequence of their having less mechanical support, that chiefly tends to extinguish the sounds of the glottis. The trachea is the part least liable to be affected by this kind of relaxation, owing to its component tissues being chiefly of a cartilaginous structure, and to its greater distance from the origin of the mischief.

If we concur in these general principles, we may now advance a step further, and proceed to consider the methods best calculated to restore the vocal tube, when thus disordered, to its normal functions. The peculiar state of the mucous membrane and adjacent parts, now under consideration, appears to be of an asthenic character; on which account depletion, counter-irritation, and other modes of antiphlogistic treatment, do no good, but generally do harm; and stimulants and astringents, applied locally, are the only remedies which tend to restore the mucous membranes to a healthy condition. A strong solution of lunar caustic, applied to the fauces with a camel's-hair brush, produces the most beneficial effects, and may be used in preference to any other remedy. Gargles of capsicum also do good, but are certainly not so efficacious as the solution of nitrate of silver.

Case I.—Mrs. H., a professional singer, suffered occasionally from loss of voice, which often lasted from six to eight weeks. On one occasion she was engaged to sing at a concert in the course of a few days, when one of these attacks came on, and she was greatly alarmed at the pro-

spect of not being able to fulfil her engagement. Under these circumstances I applied to the fauces a solution of nitrate of silver, of the strength of ten grains to one ounce of distilled water, and repeated the application on the following morning. Under this treatment the power of voice returned, and she was able to sing at the concert on the third day.

Case II.—Mrs. M., a lady who had suffered every winter a loss of voice, was placed under the same treatment, with similar results, and is now so sensible of its advantage, that she has recourse to it whenever she happens to suffer from cold, and has not lost her voice for several years past.

Case III.—Mr. R., a gentleman possessing an extremely fine bass voice, consulted me under the following symptoms. He found that he had began to lose control over the functions of the larynx: he could not sustain any note of equal intensity during the usual length of time, and the vocal ligaments appeared to be uncertain in their action. This was a case of relaxation combined with nervous irritation. Immediately after the application of the caustic solution to the fauces, I observed that the pitch of his voice in speaking was slightly elevated. This plan was continued, in conjunction with the use of tonics, and he speedily became relieved.

When the relaxed condition of the vocal tube arises from over exertion in speaking, singing, &c., the same treatment is highly beneficial, and complete rest of the vocal apparatus is indispensable for the recovery of a healthy control over the voice. Many persons lose a portion of their range of voice by exercising it too much when in this state. When Grassini, the celebrated singer, came from Italy to England, the humidity and variable temperature of the air in this country so relaxed the membranous portions of her respiratory tube, that her voice sunk nearly an octave in pitch, and was changed from a soprano to a contralto character. The effect, however, was that she acquired great celebrity, in consequence of the fine quality and range of her lower notes; but on returning to the milder climate of Italy, the soprano range of voice returned, and she lost at the same time the power of uttering that range of notes which had conferred on her voice its attractive character. In this case the relaxed condition of the vocal membranes was productive of beneficial effects; but it is presumed such cases are extremely rare.

When aphonia arises from nervous excitement, we must look for the origin of the affection beyond the mere office of the soft parts of the vocal tube. This condition may often be traced to the nervous centre, most commonly arises from an asthenic state, and is often associated with an hysterical disposition. In some hysterical cases, however, an opposite state to that of aphonia presents itself. A patient was placed under my care, who uttered a constant involuntary bark, like that of a dog, very loud and discordant. It need scarcely be mentioned that no beneficial result can be expected in such a case from mere local treatment. Sudden alarm and over excitement will often cause aphonia. When this is produced by an altered state of the nervous functions, galvanism is said to be beneficial. A case of this description is recorded in the Encyclographie Médicale. A young man, having killed a comrade in a duel, became epileptic, and lost his voice from the excitement. All other treatment

having failed, his medical attendants had recourse to electricity. A galvanic battery of 30 pairs of plates was employed; the zinc pole was applied to the first cervical vertebra, and the copper pole to the side of the larynx; 200 shocks were given the first day, and 300 on the second, when the parts became somewhat sensible. Two days' respite was then allowed, and at the third sitting the patient received 300 shocks from 70 pairs of plates. On the fourth day, 400 shocks from 70 pairs were administered; and after the latter application the patient began to utter a feeble cry. Six days were then allowed to elapse, after which 300 shocks were given with a pile of 30 plates. The treatment was continued a few days longer, and at the last four sittings 400 shocks were administered through the tongue; the zinc pole being applied to the first cervical vertebra, and the copper pole under the tongue. By means of this treatment the voice gradually returned to its natural state, and at the end of twelve operations he was convalescent. In another case aphonia resulted from sudden surprise and over-exertion. The patient was a tradesman residing in St. Martin's lane, who was standing in his shop, when an impudent thief entered, very coolly took up some article before his face, and bolted away. The tradesman ran to the door, crying "Stop thief!" as loud as he could vociferate, and was about to repeat the same exclamation, when he suddenly found himself unable to do so. The larynx was rendered mute, and he remained incapable of uttering a vocal sound for the space of eight months, when his voice returned unimpaired.

The more aggravated forms of aphonia, such as those arising from diseases of the larynx, or morbid conditions of the brain, most commonly baffle every method of treatment hitherto devised; but the investigation of these cases would lead to very lengthened details, besides being irrelevant to the class of cases selected for this communication, the scientific treatment of which often leads to very gratifying and satisfactory results.

Art. 9.—*On Paracentesis Thoracis*:—In a paper in which the safety and propriety of performing the above operation, before the lung has sustained such injury as to prevent its perfect expansion, is considered, Dr. Hughes lays down the following rules for the guidance of the practitioner to whom the operation is not familiar.

1st. It is well never to propose it, without having previously inquired into the history of the case, and having minutely investigated the general symptoms as well as the general signs.

2d. After this has been effected, and all the ordinary means of diagnosis have been fairly brought into requisition, the trochar should never be introduced before the exploring needle has been employed for the purpose of confirming the diagnosis.

3d. The puncture of one side of the chest, excepting under circumstances of imminent danger, should never be made before it has been clearly ascertained that the opposite lung, if not entirely free from disease, is at least capable of carrying on the respiration.

4th. The fluid should be drawn off slowly through a small-sized canula, if the effusion is thin and serous; through one of larger size, if it is purulent.

5th. So much only of the fluid should be withdrawn as flows spontaneously without the admission of air.

6th. The escape of the fluid should be favoured by an inclination of the body towards the punctured side.

7th. It is desirable after the operation to support the chest with a flannel bandage, and to enjoin silence on the part of the patient for at least four and twenty hours.

*Medical Gazette*, Feb. 13, 1846.

ART. 10.—*On the Pulmonary Melanosis of Miners.* By Dr. BROCKMANN.

(*Allgem. Repert. die gesammt. Heilkunde et Encyclograph. des Sciences Médicales*, Jan. 7, 1846.)

[The following memoir, which we have translated for the benefit of such of our readers as reside in the mining districts, was briefly alluded to in our last Report (vol. ii, p. 216).]

Much diversity of opinion of appears to exist among authors, as to the exact signification of the term "miners' disease." Some apply the term only to the asthma induced by the inhalation of air charged with a metallic powder; others include likewise the asthma peculiar to mountainous districts; while others, again, comprehend under the same term all the forms of disease induced in miners by the inhalation of metallic fumes. All, however, agree in recognising the lungs as the principal site of the malady.

The anatomical changes which are found in this disease may be divided into those which are *essential*, and those which are *accidental* and *secondary*. The essential character consists in a black discoloration of the lungs throughout their entire extent. This colour is seen in four degrees of intensity. In the first degree, which is never fatal, several rounded or elongated points, of a brownish red colour, are observed. In the second degree, the patches have increased in extent and intensity of colour, and a dark fluid exudes from the lungs on pressure. In the third degree, the entire lung is occupied by the discoloration, certain portions being of a grayish colour, and surrounded with a line of a still lighter tint. Finally, in the fourth degree, the organs are universally dark-coloured, and filled with dark frothy fluid. In all these different degrees of the disease the specific gravity of the lungs remains normal, and nothing remarkable is seen in their structure, with the exception of a slight induration in the fourth degree.

Among the accidental changes observed in the disease may be enumerated miliary tubercles, which are usually deep-seated, and seldom softened; scirrhous masses of irregular form; cavities of the size of a pea, and filled with black semi-fluid matter; pleural adhesions, hydrothorax, and atrophy of the heart and liver.

The symptoms of pulmonary melanosis vary according to the stage of the disease. In the first period there are scarcely any symptoms by which it can be recognised; but when it has arrived at the second degree, its presence may be ascertained with greater certainty. One of the first circumstances observed is an alteration in the countenance, which, if previously florid, becomes of a pale and livid hue. At the same time the appetite and strength fail in a notable manner, and the patient complains of weight and distension in the epigastrium, with lumbar and muscular

pains. To this is added a dry cough, and more or less palpitation of the heart.

The patient not unfrequently passes several years in this condition without much alarm; but as the third degree of the disease approaches, a general and increasing emaciation seldom fails to awaken his attention to his position. At this time the strength gradually decays, the appetite diminishes more and more, and expectoration of a grayish sputum accompanies the cough. The dyspnœa becomes so urgent as to have been considered almost peculiar, and has given one of its names (miners' asthma) to the disease. The muscular pains are much aggravated, and especially in the night. In the fourth stage the near approach of death is sufficiently perceptible. The face and extremities become œdematous, and effusion takes place into the pleura or pericardium, and the expectoration assumes a pitchy black colour. Towards the close of life there is complete prostration of strength, with constant watchfulness. Death frequently takes place suddenly.

The melanosis of miners may be confounded with asthma, phthisis pulmonalis, and hydrothorax. From the former disease it may readily be distinguished. This has its periods of perfect intermission, but the pulmonary melanosis, once established, has no perfect remission of symptoms. From phthisis it is to be distinguished by the physical signs. In the latter disease the sound is dull on percussion, the capacity of the thorax diminishes, and there is heard either bronchophony, pectoriloquy, or amphoric breathing. In melanosis, on the contrary, the dimensions and percussion of the chest are normal, and the respiratory murmur is distinct as long as there are none of the accidental products above mentioned present. The sputa likewise are characteristic. The voice is rarely affected, as in phthisis, and the livid and peculiar state of the countenance and general surface are not observed in that disease. The distinction between melanosis and hydrothorax is not always readily made out, as in many cases they exist simultaneously. The presence of fluid in the pleura may, however, be suspected when the inferior parts of the thorax are dull on percussion, and the respiratory murmur is absent over the same space.

What is the nature of this disease? Is it to be considered as true melanosis or not? Is it dependent upon an internal cause; or is it produced by the inhalation of carbonaceous matters from without? Carswell considers *true melanosis* to be a constitutional disorder; that which arises from an external cause he calls *false melanosis*. Bondy understands by *true melanosis* the deposit of a black pigment, which produces a change of tissue, and by *false melanosis*, that form of deposit in which no such change takes place. For this reason the disease in question would be considered by the latter as *false;* by the former as equally belonging to *false* and to *true* melanosis. The author believes that although the black pigment is partly composed of vegetable matter, that there is nevertheless a considerable portion of it composed of animal charcoal; in fact, this has been clearly ascertained to be the case by M. Bethe. If the lungs were filled with coal-dust, their specific gravity ought to be augmented; this, however, is not observed to be the case. If the disease be solely produced by the inhalation of carbonaceous matters, how comes it that the symptoms continue, and are even aggravated, although the patient has

long since been removed from the mines? There must be an internal cause, a modification in the organism, to explain the phenomena of the disease. How does it happen also, that of a certain number of workmen, employed under precisely similar circumstances, some entirely escape the disease? How is it, too, that as the molecules of carbon must be absorbed by the pulmonary vessels, other tissues are not discoloured as well as the lungs?

The symptoms and progress of the disease sufficiently declare that the disease is a veritable cachexia, differing from other cachexiæ in the small amount of local lesions. It has considerable resemblance to senile marasmus, in which the patient dies without our being able to localize the malady.

The author considers that the blood of miners is modified in three ways: first, by the air of the mines; secondly, by the charcoal dust; thirdly, by the want of sufficient exercise. The predisposing causes are the bilious temperament, uncleanliness, habitation of damp ill-ventilated places, and excess of every kind. The therapeutic indications are to modify the hypercarbonized blood. To this end the author exhibits the oxide of iron, with purgatives of calomel and jalap. Bleeding is of no use. Blisters are occasionally serviceable, as are also sedatives and tonics. The disease is fatal when textural change has taken place in the lungs, or when hydrothorax supervenes.

## Art. 11.—*On Acute Tuberculosis of the Lungs.*

By Dr. Hasse, Professor of Pathology at the University of Zurich.*

Acute tuberculosis of the lungs seems to originate wherever, through existing disposition, the mass of fluids have become so saturated as, on a slight occasion, to throw out an inordinate quantity of tubercuIous matter. The most frequent occasion is a catarrhal affection; indeed the disease seldom occurs unless thus preceded. Acute tuberculosis may arise either in persons previously free from tubercle, or else in those in whom manifest traces of previous tubercular affection are discoverable; or, finally, it may be grafted upon phthisis already present in a chronic form. Accordingly two forms may be discriminated, a primary and a secondary. The first attacks persons between the ages of 15 and 25, more especially the male sex; the latter those in the prime of manhood, or even advanced age. In very marked cases, one or both lungs are found uniformly loaded with tubercles from the apex to the base. These are always of the miliary form, mostly yellowish and soft, but occasionally gray and more solid. The colour and consistence depend upon the degree of irritation produced in the surrounding textures. The yellow and soft tubercles are found in the centre of a group of red or gray hepatized pulmonary cells, while the gray tubercles are imbedded in a tissue saturated with bloody serum. When the disease is slower in its course, the tubercles are less uniformly miliary, being in a great measure united into little groups, and more densely crowded at the apex than in the base of the lung.

* Anatomical Description of the Diseases of the Organs of Circulation and Respiration. Translated by W. E. Swaine, M.D.

Acute tubercular phthisis proves invariably fatal, very often during the third week. The vital symptoms are very peculiar, bearing so close a resemblance to those of typhus as to lead to mistakes. The diagnosis can only be determined by the stethoscopic signs, and sometimes by the continuance or frequent recurrence of hemoptysis. On examination after death, one or both lungs are found greatly enlarged; they do not collapse when the thorax is opened, are dark-coloured, and gorged with blood and serum. The numerous and equally distributed tubercles have everywhere the same character, a sure proof of their simultaneous origin. They are surrounded for a line's breadth by inflamed, if not hepatized, parenchyma; the inflammation seldom, however, extends to any distance, so that, notwithstanding the great multitude of tubercles, pulmonary cells, still permeable and comparatively healthy, are everywhere to be seen. Adhesions between the pulmonary and costal pleuræ are never met with, unless of earlier date. Miliary tubercles are sometimes seen upon the pleura and other serous membranes; in rare instances also beneath the arachnoid: All the solids and fluids of the body suffer a change, inasmuch as a rapid exosmosis of serum is determined, and liquid effusion tinged with blood accumulated in all the serous cavities. (p. 321.)

---

## SECT. IV. DISEASES OF THE CIRCULATORY SYSTEM.

### Art. 12.—*Observations on Anæmia.* By M. Trousseau, Professor of Therapeutics to the Faculty of Medicine of Paris.

(*Journal de M. Beau*, Juillet, *Encyclograph. des Sciences Médicales*, Août, 1845.)

[It is too much the custom with medical men to regard an anæmic condition of the system as of trivial consequence, and one which is easily to be remedied by the exhibition of the ferruginous preparations. Although this may be the case as a general rule in an early condition of the disease, it must have occurred to every practitioner of experience to meet with cases of apparently simple anæmia, in which the established mode of treatment is either completely unsuccessful or requires great nicety of management in order to produce its customary beneficial effects. The object of the present communication is to enforce upon the medical reader the necessity of regarding the disease with more attention than is commonly accorded to it; and although it contains many observations arising out of the peculiar theories of the author, which may justly appear untenable, it, nevertheless, upon the whole, will we think be found worthy of translation. The author writes as follows:]

"In the opinion of the majority of the profession, anæmia affords but one prominent feature, namely, an impoverishment of the blood. This fluid is less rich in globules, and more abundant in serum, while the fibrin remains in normal proportion. [In some cases Becquerel and Rodier found fibrin in excess. Vide Abstract, vol. i, 326.] Anæmia is the fundamental phenomenon; to restore the deficient constituents of the blood, the fundamental therapeutic indication. I wish in the following dissertation to establish,—

1. That anæmia is not in all cases the same affection, pathologically considered.

2. That the tonic treatment is often useless, sometimes positively injurious.

The most simple form of anæmia is that which results from the occurrence of one or more attacks of hemorrhage. If the hemorrhage occur but once, the blood soon recovers its normal condition; but if it be often repeated, and assumes a chronic form, experience proves that the reconstitution of the blood is not so readily accomplished. There is one fact which must strike every reflecting mind, namely, that the composition of the blood is much the same, whether the disease has existed six months or one. It must be evident, therefore, that if the disorder of the blood was the whole disease, its duration would not affect the facility with which it could be remedied, and that chronic anæmia would be cured as easily as that arising from a sudden and solitary loss of blood. This, however, is well known not to be the case, and we, therefore, learn that another element is added to the chain of morbid actions, by a failure in the energy, if not a change of structure in the organs so long supplied with impoverished blood.

Anæmia, then, considered in this point of view, is no longer a simple alteration of blood, but a complex condition, known as chlorosis, and of more or less considerable gravity. At the onset of my career, I was in the habit of regarding chlorosis as one of the most simple and curable of diseases; but in proportion as my experience increased, I discovered that it oftentimes possessed a severity I had not anticipated. It was then, that on examining more closely into the disease, I perceived that it occurred more frequently in connexion with suppression of the menses than in consequence of hemorrhage; that it developed itself sometimes with an extraordinary rapidity, without any preceding loss of blood, and was accompanied by symptoms of greater severity than are seen in other forms of anæmia; that it may last for an indefinite time, yielding neither to the best arrangement either of dietetic or medicinal treatment; and that after it has been apparently cured, it will often return in a more aggravated degree, and without appreciable cause. Finally, that it frequently leaves the patient a victim for life to anomalous neuralgic complaints, and to debilitating discharges, which were first established during its presence.

Independently of the two forms of anæmia first considered, namely, that resulting in direct loss of blood, and that known as "chlorosis," there is another which manifests itself under the influence of some organic lesion, and in which medical treatment directed solely in reference to the "anæmia" is either useless or dangerous. Such, for instance, in the anæmic state arising from albuminuria, in which it frequently happens that the treatment is chiefly directed against the symptoms of chlorosis, which, unless the urine be examined, is looked upon as the sole disease, with the imminent risk of aggravating the tendency to local inflammations so commonly intercurrent in the renal affection. I am aware that Rayer advises the preparations of iron in this disease, but he has been led to the adoption of this rather from theoretical views of the composition of the blood, than from clinical experience. It is true that, in the anæmia which accompanies the cancerous diathesis, iron may sometimes be ad-

vantageously employed, but here a distinction must be drawn. Tin and other tonics are of no value in the cancerous cachexia indicated by the discoloration of the skin and an impoverishment of the blood, identical in appearance with that of chlorosis; but they are of much service in the anæmia which follows the loss of blood in cancerous diseases."

[We have now the enunciation of the theory to which we briefly alluded in our last Report, (vol. ii, 207,) that the tubercular and chlorotic cachexia are antagonistic, and that in persons known to spring from tubercular parents, it is unsafe to remove a chlorotic condition, as its persistence is a safeguard against the development and localization of tubercles. As we before observed this theory is opposed to all recognized facts in the causation of tubercle, but we shall, as the author is a man of some eminence, allow him to speak for himself.]

"In the first place not only do we consider these two affections (the chlorotic and tubercular cachexia) dissimilar, but we are disposed to regard them as antagonistic. A well characterized chlorosis appears to us to exclude tubercular phthisis, or, at all events, to retard the manifestations of that disease, and consequently of the cachexia which precedes it. The difference between these two cachexia is shown in the results of treatment; the chlorotic anæmia is benefited by the preparations of iron, *the tubercular cachexia is, for the most part, aggravated by them.*

"Most practitioners have met with young females born of phthisical parents, who have, about the age of puberty, exhibited all the signs of chlorosis. The disease has been rebellious, and yielded tardily to ferruginous preparations, and has been accompanied by cough, diarrhœa, and even hemoptysis. At other times no symptom of tubercular origin has been present. I am willing to admit that the patient is anæmic, but I ask if this anæmia, instead of being purely chlorotic, is not the symptom of a diathesis, which, before it manifests itself by severe local lesions, gives rise to an alteration of the blood, singularly similar to that of chlorosis, and is perhaps no more than chlorosis embarrassed in its development by the presence of another diathesis."

[The false chlorosis, as the author terms it, is believed by him to be a condition of safety in females predisposed to tubercles, because the impoverishment of the blood is unfavorable to the pulmonary inflammations, upon which he believes the tubercular disposition to depend. For this reason he advises the practitioner never to administer iron for chlorosis where there is reason to suspect tubercles, The author admits that in these views he is opposed to the generality of pathologists, but he adds, that he has convinced more than one physician of note of their soundness. The author next considers miasmatic anæmia.]

"The anæmia which follows intermittent fever has long been known and described; but M. Bretonneau was the first to demonstrate that the anæmia was not the consequence of the febrile paroxysms, but of the miasmatic intoxication. Children born in marshy districts are frequently remarkable for their pallid aspect, and adults who have gone to reside in those localities become etiolated without even having, or long before they are attacked by, intermittent fever. This anæmia is not affected by iron, but rapidly gives way to quinine.

"Syphilitic anæmia, rare in adult age, is very common in infancy. In this form, as in the other, iron is of no value, but the liquor of Van Swieten

given to the infant, or mercurialization of the nurse, at the same time that it removes the outward manifestations of the constitutional syphilis, restores the colour of the body, and rectifies the previously disordered functions."

[There are other forms of anæmia which the author does not mention in the present communication, as that which attacks painters, &c.; and another form peculiar to puerperal women. These he promises to make the subject of a future paper, which, when it appears, will be laid before our readers.]

## Art. 13.—*Observations on Anæmia.*

By James Turnbull, m.d., Physician to the Liverpool Northern Hospital.

(*Lancet*, March 7, 1846.)

Anæmia may occur spontaneously, as in chlorosis, or it may originate in direct loss of blood. These two forms, to a certain extent, resemble each other, but in the latter case, where a large quantity of blood has been lost, nervous symptoms are superadded, which are not seen in the spontaneous form of the disease.

*Physical signs of Anæmia.*—These signs are stated by Dr. Turnbull to consist chiefly in the presence of certain murmurs, caused by the presence of attenuated blood through the vessels. Laennec long since discovered that a bruit de soufflet could be heard over the heart and larger arteries, not only in disease of those parts, but also in many persons who are perfectly free from organic disease. He also found that this murmur is most common in persons of the nervous constitution, in hysterical patients, and those who have suffered from hemorrhage. Laennec was not able to account for the symptom; but recent pathological inquiries have satisfactorily determined, that where, in such cases, a murmur is present in the heart or arteries, that the proportion of globules in the blood is below the average. [For a most interesting series of remarks upon this point, by Andral, see Half-yearly Abstract, vol. i, p. 326.] It is commonly believed that the rationale of the production of the murmur is that the diminished tension of the unfilled arteries allows their walls to vibrate more readily. Dr. Turnbull himself admits this explanation, because he has found that the murmur is loudest where the quantity of blood in the system is diminished, and insufficient to distend the venous system.

The inorganic or anæmic bellows murmur is described by the author as in general of a softer character, as well as less persistent, than the murmurs dependent upon organic affections. It is heard only during the first sound, and is most distinct over the aortic orifice. The anæmic murmur of the arteries is a short *whiffing* sound, heard on pressing gently with the stethoscope upon the subclavian or other large artery. When the murmur occurs, as it sometimes does, in the abdominal aorta, it is often accompanied by epigastric pulsation. The two symptoms frequently lead to the suspicion of aneurism and the diagnosis is not always easy.

In addition to the arterial murmur, we not unfrequently find in those who have become anæmic, that the pulse has acquired a peculiar jerking character. This character is likewise found in insufficiency of the aortic valves; and as we have the bellows murmur very distinct in the arteries

in this organic affection, Dr. Turnbull is inclined to agree with Dr. Hope in attributing the peculiarity of the pulse to the unfilled state of the arteries, which occurs in both cases.

Another important sign of anæmia consists in the presence of a murmur in the large veins of the neck. This murmur is either perfectly continuous, or of remittent intensity. In highly anæmic individuals the murmur may be heard on both sides of the neck; it is, however, generally loudest on the right. It is best heard by causing the patient to turn the head to the left side, and to raise the chin in such a manner as to render the integuments of the neck tense. The stethoscope may then be placed upon the sterno-mastoid muscle, just above the clavicle, and the murmur will be heard with an intensity proportionate to the degree of anæmia. It was believed that the murmur thus developed had its seat in the arteries, until it was proved by Dr. Ward that it is caused by the passage of the blood through the veins, from the fact that the sound may be suspended at once by pressing upon the vein higher up in such a manner as to intercept the current of the blood. [This explanation of the anæmic bruit is not generally acknowledged by the French writers, M. Aran being almost the only one who has publicly supported the opinion of Dr. Ward. Quite recently M. Beau (Archives Générales, Septembre, 1845) has maintained that the sound is produced in the carotid artery, and that the test of pressure above the stethoscope is fallacious, as the carotid is pressed equally with the vein.—Ed.]

There are other modifications of the venous murmur which have been called musical. In some instances the sound is of a whistling character; in others it resembles the humming of an insect. Dr. Turnbull has remarked that an ordinary venous murmur may be converted into the latter variety, by such pressure of the stethoscope as nearly obliterates the vein. He agrees with Bouillaud and Dr. Hope, that the musical bruits are more common in thin persons, than in those who offer a certain amount of embonpoint. [The author gives an interesting table of the various incidental affections connected with anæmia, in which he has most frequently noticed venous murmurs. They were, in 164 cases, as follows:] Chlorosis, 42; irregular menstruation, 13; anæmia from loss of blood, 8; anæmia from lactation, 6; simple anæmic debility, 19; dyspepsia, 18; hematemesis, 4; dysentery, 2; cerebral symptoms depending on anæmia, 6; paralysis, 4; epilepsy, 3; chorea, 3; neuralgia, 2; spinal irritation, 2; asthma, 1; bronchitis, 9; phthisis, 5; pleuritic effusion, 1; palpitation of the heart, 8; cachexia, (following intermittent fever), 3; syphilitic cachexia, 2; scurvy, 2; tubercular peritonitis, 1. The ages of these patients were—from 1 to 10 years in 4; from 10-20 in 56; from 20-30 in 58; from 30-40 in 21; from 40-50 in 18; above 50 in 7. 130 were females; 34 were males.

All these cases may be arranged under the common head, anæmia; the separate heads under which they are placed by the author merely indicate the most prominent functional derangement, which in some cases may be regarded as the cause, in others as the effect of the general malady. The author remarks upon the great preponderance of females over males in this table, but is not able to give any satisfactory explanation of the fact. He appears inclined to attribute it to a natural tendency to diminution of the blood-globules in the sex, and to their greater proclivity to certain causes tending to produce the diminution. He thinks also that the mur-

mur is rendered more readily perceptible by the more general fulness of the venous system in females, and the greater tension of their integuments from the presence of a larger quantity of cellular and adipose tissue. [This opinion is contradictory to that above expressed by the author, that the musical murmurs, which are admitted to be the exaggerated state of the venous murmurs, are most commonly heard in thin women. This portion of the author's communication is concluded by the following deductions.]

1. That diminution of the blood-globules below the healthy average is the chief cause of these cardial, arterial, and venous murmurs.

2. That the production of cardial and arterial murmurs is favoured by the abrupt contractions of the heart, and produced by nervous excitement, to which anæmic subjects are peculiarly liable.

3. That the production of arterial murmurs is in most cases favoured by diminution of the total quantity of blood in the vascular system, which renders the coats of the arteries less tense, and thus allows them to vibrate more easily than in their natural tense condition.

4. That the veins being naturally more flaccid than the arteries, the production of continuous murmurs is favoured by a full and tense condition of these vessels; induced by the state of false plethora frequently observed in chlorosis, and by the considerable abundance of the adipose and cellular tissues.

## Art. 14.—*On the Rational and Physical Signs of Aneurism of the Aorta.*

By Dr. O'B. Bellingham.

(*Dublin Medical Press*, Dec. 31, 1845.)

The symptoms of aneurism of the arch of the aorta are stated by almost every writer upon the subject to be exceedingly obscure, so long as a pulsating tumour presenting itself externally is absent. Indeed many go the length of saying, that it is impossible to diagnose it until it has arrived at this stage; and they have recorded cases where the disease existed unsuspected by the patient, and undetected by his medical attendant for a considerable period, or until the sudden death of the patient. Undoubtedly cases occasionally occur where the symptoms are so little urgent that the patient never seeks for medical advice, and the disease is only detected upon a post-mortem examination; but such cases are rare, and are to be regarded rather as exceptions to the general rule. In the majority, certain symptoms are present from an early period, which, though sometimes vague, and such as might be referred to other affections besides aneurism, yet if taken in connexion with the patient's previous history, will often lead to a well-grounded suspicion of the nature of the disease; and if its progress is carefully watched, will generally enable the diagnosis to be confirmed.

The symptoms of aneurism of the arch of the aorta will be described under the heads—Local, General, and Physical Signs; the latter do not, however, possess the same value or precision as they have in some of the diseases of the heart which have been described.

Local and General Signs.—The local and general signs of aneurism of the arch of the aorta, which will require separate notice, are—pain,

dyspnœa, wheezing respiration, diminution or loss of voice, difficulty in swallowing, venous congestion, and anasarca of the face and upper extremities, the relative character of the pulse at each wrist, and the position which the patient maintains.

*Pain.*—One of the first, perhaps the only pathognomonic sign of aneurism of the aorta in the very early stage, and in certain parts of the vessel, is pain of a peculiar character. It is only, however, within a comparatively recent period that the importance of this as a sign of aortic aneurism has been recognised, or its value as an aid to diagnosis fully appreciated. We are indebted to Dr. Beatty for first calling attention to it in abdominal aneurism; subsequently Dr. Greene pointed out the frequency and the obstinate nature of the pain in thoracic aneurism; Dr. Law was, however, the first to describe its twofold character, and to dwell particularly upon its importance as a diagnostic sign, before any tumour is developed externally, and before any other symptom arises to attract attention.

I do not mean, however, to assert that this symptom had been overlooked previously; Laennec in several parts of his immortal work notices it; but he did not attach the importance to this symptom which it deserves—indeed he states that aneurism of the aorta can never be recognised with certainty until it forms a pulsating tumour externally.

The nature of the pain in these cases is peculiar; it has (as Dr. Law has described it) a twofold character—there is a dull aching pain, which is constantly present, and a sharp lancinating pain, which is intermittent, or only occasionally felt. The dull, aching, constant pain in thoracic aneurism is felt in the region of the spine, between the scapulæ, or in the left scapula, shoulder, and side of the neck, or anteriorly in the sternal or left mammary regions. The lancinating pain is felt in the same situations; it sometimes extends along the ribs to the left shoulder and arm, resembling angina, or it shoots through the chest from the præcordial region to the scapula posteriorly.

The constant dull pain has often the character of rheumatism, and is frequently considered to be such by the patient, and prescribed for as such by his medical attendant. A remarkable peculiarity in the pain of aneurism, which I have in several instances noticed, is that it is often much more severe at night than during the day; it even sometimes comes on regularly at a certain hour, and subsides at a fixed hour in the morning. When the two kinds of pain are present at the same time, the sufferings of the patient are greater than in most diseases, not even excepting neuralgia; sometimes, however, he makes no distinction between them, but describes the pain as always intensely boring or burning. When a thoracic aneurism appears as an external tumour, and attains a large size, there is often in addition pain or soreness in the integuments covering it, which is considerably increased by the least pressure. In the early stages, however, pain on pressure is altogether absent, or relief is sometimes obtained from pressure.

If every aneurism of the aorta in its early stage was attended by the pains which have been described, and if they had always the same character, no difficulty would arise in the diagnosis. This, however, is not always the case; sometimes little or no pain is experienced from beginning to end; at others it has that vague character which is not calculated to attract much attention; but these circumstances, which appear to militate

against the value of this symptom as a sign of aneurism, in reality increase it, because pain of an obstinate nature is the earliest symptom in precisely those cases where the aneurism would otherwise remain long undetected and unsuspected, owing to the length of time which elapses before the tumour appears externally.

The circumstances just mentioned help to give an explanation of the cause of the pain at this early period, as it is met with particularly in cases where the aorta at the part engaged is firmly bound down, and the unyielding nature of the parts about it prevents the sac from enlarging; hence it ought to be a symptom of aneurism of the descending portion of the arch of the aorta rather than of the ascending or transverse; it ought likewise to be most marked when the aneurism springs from the posterior surface of this part of the vessel than from the anterior; and this is frequently what does happen, and what is also observed in aneurism of the abdominal aorta. Dr. Law thinks the pain in these cases may be referred partly "to the position of the aneurism in reference to its being so circumstanced as not to be free to enlarge itself; partly to destruction of the vertebræ with which it is so often associated; and partly to the sensibility of arterial tissue when inflamed."

When the aneurism increases much in size, when it compresses or stretches the nerves in its vicinity, or comes to act upon the bony matter of the vertebral column, pain is almost a necessary attendant; but it may be very intense, and even have the characters which Dr. Law describes without any erosion of the vertebral column. Here it is probably due in part to the injury inflicted upon the nerves in its vicinity. Thus the thoracic ganglia of the great sympathetic which pass along the spine over the heads of the ribs will very probably suffer compression if the aneurismal sac takes a direction backwards towards the vertebræ, or causes absorption of their bony tissue; and we know that when the sac attains such a size as to make pressure on the brachial plexus of the left side, severe pain is complained of, referred to the shoulder, arm, and side of the neck, (owing to the communication between the brachial and cervical plexus,) which often extends to the elbow or fingers, and may be accompanied by numbness in the parts supplied by those nerves.

*Dyspnœa.*—Dyspnœa is a frequent attendant upon aneurism of the ascending and transverse portions of the arch of the aorta, and usually accompanies the advanced stage of thoracic aneurism in every part of its course. It was a symptom upon which both Corvisart and Laennec laid a good deal of stress. In some cases of aneurism of the arch of the aorta the dyspnœa is very trifling, merely a sense of oppression or stuffing in the chest; at others the patient is completely free from it, or it comes on only after exercise or exertion; at others it is the most distressing symptom throughout the patient's illness. Sometimes the dyspnœa has an intermittent character; at others it sets in suddenly, comes on in violent paroxysms, is accompanied by orthopnœa and severe pain, and the patient appears to be in imminent danger of suffocation. Whether dyspnœa be an urgent symptom or not will depend upon the parts which are compressed, which will differ according to the size of the sac and the direction which it takes. Corvisart and Laennec were of opinion that dyspnœa will be less pronounced when the aneurism forms a tumour externally, than when it is entirely concealed in the cavity of the chest; this, however, is by no means a general rule.

Dyspnœa is usually most constant and most marked when the sac springs from the upper or posterior surface of the transverse or ascending portion of the arch of the aorta, because of the important parts which are seated in their immediate vicinity ; thus the trachea or large bronchi may be pressed upon ; the left pneumogastric, the phrenic or recurrent nerves may be stretched or compressed ; or the lung may be intruded on if the tumour attains a considerable size. Pressure upon the trachea or left bronchus necessarily occasions dyspnœa, but as it also produces more or less wheezing respiration with cough, it will be noticed in describing these symptoms. Compression of the lung by a very large aneurism takes place so gradually that this organ has time to adapt itself to the changes which are produced; it therefore can never be more than a secondary cause of dyspnœa.

There are, however, one or two causes which are perhaps too often overlooked, but which, I am inclined to think, are not unfrequent agents in occasioning the distressing dyspnœa present in some cases : I allude to the injury which may be inflicted upon the pneumogastric or phrenic nerves upon the left side by the growth of a large aneurism of the aorta.

The eighth pair of nerves, the par-vagum or pneumo-gastric (as they are variously termed) are intimately associated with the function of respiration ; indeed the pulmonary plexus which lies behind the root of the lung is formed by them, and experiments on animals have shown that the conversion of venous into arterial blood during the act of respiration depends upon the integrity of these nerves, for when cut across the respiration becomes slower and gradually more difficult until it ceases. Under such circumstances the blood is imperfectly aerated, and the temperature of the animal becomes rapidly lower ; at the same time a bloody serous fluid exudes into the air-cells and bronchi, owing, it is believed, to paralysis of the muscular fibres of the bronchi. The division of only one nerve produces less disturbance, and limits the derangement of function to the lung upon that side. We have seen that the pneumogastric nerve of the left side crosses the transverse portion of the arch of the aorta, consequently it may be stretched or compressed by an aneurism springing from this part of the vessel, which can hardly happen without the functions of the lung upon the same side being disturbed.

The contraction of the diaphragm in the act of inspiration depends upon the integrity of the phrenic nerves, and the division of these nerves in animals is followed by paralysis of this muscle. Now the phrenic nerve upon the left side is so situated that an aneurismal tumour proceeding from the arch of the aorta may injure, compress, or stretch it, and thus cause irritation in or interfere with the functions of the part which it supplies, by which existing dyspnœa will be aggravated, or spasmodic attacks of very severe dyspnœa may be produced, accompanied by severe pain referred to site of the diaphragm. Indeed this circumstance is alluded to by Mr. Burns in his work on Diseases of the Heart. He mentions a case where a most painful spasm or feeling of stricture in the direction of the diaphragm (which the patient compared to that of a rope drawn tightly round his chest) was complained of, and "was probably occasioned by the aneurismal sac irritating the phrenic nerve." He adds, that Dr. Simmons had observed the same symptom in three cases of aneurism of the aorta.

Aneurism of the transverse portion of the arch of the aorta frequently

comes to press upon the trachea or left bronchus; when according to the amount of the compression, more or less flattening or narrowing of the calibre of the tube will be the consequence; and a peculiar wheezing or whistling sound will be developed during respiration, which is sometimes very characteristic. The pressure upon the trachea here will also have the effect of occasioning cough and dyspnœa; the latter may be constant or intermittent, according to the degree of the pressure; the cough is short and dry, or hoarse and croupy, for it may be moist and accompanied by increased mucous secretion, and, like the dyspnœa, it often occurs in paroxysms of extreme severity. Corvisart was the first to notice this peculiar wheezing respiration; he regarded it as a pathognomonic sign of aneurism of the aorta compressing the trachea. It is not, however, peculiar to aneurism, for any tumour pressing upon this tube, so as to flatten it or to diminish its calibre, will have the same effect. In a case which was under my care, where an aneurism of the aorta compressed the left bronchus, the patient complained constantly of the sensation of something in the air-tubes which he would be relieved by expectorating, and made frequent ineffectual attempts to hawk it up; the wheezing or sibilous sound was not constant, but became audible only upon a full inspiration.

When the calibre of the left bronchus is much diminished by the pressure of an aneurismal tumour, less air can enter the lung upon that side, and combined with the wheezing sound in the bronchial tube, there will be feebleness or complete absence of the respiratory murmur in the left lung, and in the opposite lung the respiration will be puerile, owing to the increased duty it has to perform; while the sound on percussion (in the early period at least) remains the same, and auscultation can detect no sign connected with the state of the pleura or pulmonary cells to account for the phenomena in question. This important sign of the pressure of an aneurism of the arch of the aorta upon a large bronchial tube was first pointed out by Dr. Stokes.

*Venous congestion and anasarca.*—The ascending portion of the arch of the aorta is so situated that an aneurismal sac springing from it is very likely to compress the superior or descending vena cava; and cases have occurred where this vessel was completely obliterated in consequence. The effect of pressure on the superior cava will, of course, be to impede the return of the venous blood to the right auricle from the head, neck, and upper extremities; and the result of this impediment will be venous congestion or serous infiltration in the parts which return their blood to the descending vena cava. Under such circumstances the jugular veins become distended and tortuous, presenting a varicose condition, and the tippet-like appearance of the neck, first described by Dr. Stokes, may be presented—that is, an uniform enlargement of the neck, limited to this part, and in which the swelling is harder than in ordinary œdema. Dr. Stokes looks upon this as the effect of a generally distended state of the veins, rather than the result of effusion of serum into the cellular tissue. This state may be accompanied by coma, or by a condition resembling apoplexy, a case of which has been given by Corvisart.

*Diminution or loss of voice.*—The recurrent nerves are intimately associated with the functions of the larynx and the production of the voice, they being the motor nerves, while the superior laryngeal are the nerves of sensation, and the diminution or alteration of the voice, which is an

occasional symptom in aneurism of the thoracic aorta, (particularly of the transverse portion of its arch,) appears to arise in a great measure from the injury inflicted upon the recurrent nerve of the left side. It has been frequently proved, by experiments on animals, that the division of both recurrent nerves causes complete loss of voice by paralysing the muscles which move the glottis; while the division of one nerve only materially diminishes its intensity. In the human subject we have seen that the recurrent nerve upon the left side hooks round the aorta, and passes through its arch; hence in aneurism of this part of the vessel it is liable to suffer compression, stretching, or other injury, the effects of which will be evident upon the larynx, and the voice may become hoarse and husky, or be reduced to a mere whisper. The combination of pressure upon the trachea and recurrent nerve by an aneurism of the arch of the aorta, has given rise to such urgent symptoms (closely resembling those of laryngitis or spasm of the glottis) as to require the performance of the operation of tracheotomy, in order to prolong the patient's life.

*Dysphagia.*—Difficulty of swallowing is not an ordinary symptom of aneurism of the aorta, but is met with sufficiently often to deserve particular attention when a patient presents this symptom. It is observed only in cases in which the sac presses upon the œsophagus, consequently it is much more likely to occur in cases of aneurism of the transverse portion of the arch than where the sac springs from the ascending or descending portion, and according to the situation of the sac and the degree of pressure, it may render the swallowing of solids difficult or altogether impossible; indeed several cases have been related where it gave rise to all the symptoms of stricture of the œsophagus, and was treated as such. Dr. Watson mentions one, where a patient, supposed to labour under stricture of the œsophagus, was admitted into the Middlesex hospital; soon afterwards he brought up from the throat a red mass, which at the moment was supposed to have been a bit of meat that he had been trying to swallow. It really was part of the coagulum from an aneurism, and it was speedily followed by a stream of red blood, and by death.

When dysphagia is a symptom in aneurism of the arch of the aorta, dyspnœa is almost always present at the same time, because an aneurismal sac which presses upon the œsophagus will generally also compress the trachea or left bronchus. Dysphagia, however, it is obvious, might be the result of many other causes besides aneurism of the aorta, and unless it is combined with some less equivocal symptoms, no confidence is to be placed in it.

*Condition of the pulse.*—In aneurism of the arch of the aorta the pulse is not necessarily affected unless the aneurism is accompanied by valvular or other disease which impresses its own characters upon the pulse; or unless the aneurismal tumour comes to compress the subclavian artery upon the left side, or the arteria innominata upon the right, when the pulse at each wrist will differ in strength or fulness, and according to the amount of pressure, will be small, feeble, or imperceptible in one radial artery, while it may preserve its normal character in the other. Extreme feebleness or absence of the pulse in aneurism of the arch of the aorta is more frequent upon the left than the right side; this is readily explained by the long course of the left subclavian artery in the thorax, (owing to its having its origin from the aorta,) which exposes it to be more easily and more frequently compressed than the subclavian upon the

right side. The pressure is sometimes so great that lymph is effused, and the artery is completely obliterated at the point, an example of which I met lately.

Difference in the pulse at the wrist upon the opposite sides is a valuable sign of aneurism of the arch of the aorta when combined with some of those which have been mentioned; but although it was regarded by Corvisart and Laennec as the only sign, with the exception of oppression, which was common to every aneurism of the arch of the aorta, it is of no value by itself, and it is absent in many cases of aneurism of this part of the vessel.

*Position of the patient.*—The position which a patient labouring under aneurism of the arch of the aorta assumes, varies much according to different circumstances, and but little information is to be gained from this sign. It usually has relation to the degree of the dyspnœa, and the amount of pain which the patient suffers, or to the position of the aneurism, and the stage at which it has arrived. Thus, in some instances, the patient is easiest in the recumbent posture; at others he is obliged to preserve the erect or sitting posture. Sometimes lying upon the right side occasions a dragging sensation; sometimes he is only able to obtain rest upon this side, or leaning towards it, and he cannot rest at all upon the other, although the tumour may be seated upon the left side; at others the patient is restless and uneasy in any position, and is continually changing it. When the aneurismal sac is large and compresses the trachea, the patient is usually unable to obtain rest, or even to remain long in the horizontal posture, but is obliged constantly to sit up, or to lean forwards.

In addition to the symptoms mentioned, there are a few others which can only be slightly alluded to; thus the thoracic duct, as it ascends between the left carotid and subclavian arteries, might be compressed by an aneurism of the arch of the aorta, which would be followed by enlargement of the absorbents and lymphatic glands, and death from inanition might be the result, though this is excessively rare. Laennec, however, met with one case of the kind, the aneurism sprung from the descending portion of the arch of the aorta; the case is reported in the 12th vol. of the 'Journal de Medécine.'

*Anasarca* of the lower extremities is not uncommon in the advanced stage of aneurism of the aorta, when the sac attains a large size, and its pressure occasions much obstruction to the circulation. It is not, however, a sign of any importance, because it seldom occurs until the aneurism forms a tumour externally, or until some other signs of greater value are likewise present.

The enlargement of an aneurism of the arch of the aorta might cause displacement of the heart, and this organ might be pushed over towards the right or left side, or lower down than natural, or it might be tilted forwards by the growth of an aneurismal tumour behind it. These effects of aneurism of the arch of the aorta are, however, less frequently witnessed than might *a priori* be expected; because the sac usually enlarges slowly; its ordinary direction is upwards, forwards, backwards, or laterally; and as it increases in size, it generally contracts firm adhesions with the parts in its vicinity, which will prevent it from pressing upon or displacing the heart.

In a few cases, the symptoms simulated dyspepsia, and the patient complained of flatulence, and a sensation of something rising in the

throat, resembling the globus hystericus, which tended to mask the more serious disease, and probably depended on irritation of the pneumogastric nerve. Lastly, paraplegia has suddenly occurred in a case of this kind, owing to the bursting of an aneurism into the vertebral canal, two or three examples of which are upon record.

Physical Signs.—The physical signs of aneurism of the arch of the aorta are afforded by inspection of the chest and the application of the hand to the parietes, by percussion, and by auscultation.

*Inspection of the chest, or the application of the hand to the parietes,* are of no value in the early period of aneurism of the arch of the aorta, or as long as the sac does not approach the parietes; still, although the aneurism is concealed within the solid walls of the thorax, we may sometimes (particularly if the patient's chest be narrow) perceive a pulsation deep in its cavity, by applying one hand upon the anterior, and the other upon the posterior surface of the chest, and the patient will probably say that he has this sensation himself; but in such cases it will become more perceptible if we apply the ear to the stethoscope laid upon the part; besides, other signs calculated to give more precision to the diagnosis, are generally present at the same time.

When an aneurism of the arch of the aorta increases in size and approaches the surface, or forms a pulsating tumour externally, inspection and the application of the hand afford the most positive signs which we possess; and the situation in which the aneurism points will be a guide to the part of the arch from which it springs. Thus aneurism of the ascending and transverse portion of the arch points upon the anterior surface of the chest, while aneurism of the descending portion points behind, though it generally proves fatal before this occurs; and according as the aneurism springs from the anterior, superior, or inferior edge of the ascending or transverse part of the arch, it may point below either clavicle or in the sternal region; or it may ascend above the clavicle upon either side, and resemble subclavian or carotid aneurism; or it may rise above the sternum upon the front of the neck nearly to the chin, and be mistaken for aneurism of the arteria innominata.

When a thoracic aneurism makes its appearance as an external tumour, a strong heaving impulse, synchronous with the ventricular systole, but much stronger than it, is felt, which is limited to the surface occupied by the tumour. When the sac enlarges very much, and the chest is deformed, owing to the great size of the tumour, the impulse may still have this character; more generally, however, the sac becomes partially filled with fibrine at this stage, and the impulse is diminished except at one point. Purring tremor may be also present, if the contents of the sac are fluid, and the tumour ascends above the clavicles; but it disappears if concentric layers of fibrine are deposited in the interior: indeed this sign is more frequently observed in considerable general dilatation of the arch of the aorta, or in true aneurism of this vessel, than in false or sacculated aneurism.

*Percussion.*—Percussion of the parietes of the chest affords no assistance to the diagnosis as long as the aneurism is small in size, or situated deep in the cavity of the chest. When it attains a large size, or when it approaches the surface, a dull sound will be yielded by percussion over the part corresponding to the aneurismal sac. When the aneurism has

made its way through the ribs or sternum, even slight percussion is sometimes so exceedingly painful that it cannot be borne.

*Auscultation.*—The signs furnished by auscultation in aneurism of the arch of the aorta in the early periods of the disease, are less to be depended on than some of the general or local signs; but when the sac approaches the surface, when the aneurism forms an external tumour, or when it attains such a size as to compress the trachea or large bronchi (as we have seen in describing the phenomena which accompany the latter), auscultation may become a valuable aid to the diagnosis. In the early stage of the disease, however, if one or more of the general symptoms already mentioned are present, a careful examination of the trajet of the aorta, by means of auscultation, will often detect pulsation or sound in an abnormal situation. If the aneurism springs from the ascending or transverse portion of the arch of the aorta, these signs are to be looked for in front—if from the descending aorta, behind; but as a dilated state of the arch of the aorta, or tumours of different kinds seated in the vicinity of the arch, may also be accompanied by a similar pulsation or sound, these signs can only have a relative value.

When the aneurismal sac approaches the surface or forms an external tumour, a murmur synchronous with the ventricular systole is frequently audible; this may be short, rough, and grating, or it may be prolonged and blowing, and whichever character it has, will depend upon several circumstances, presently to be mentioned. The bruit is usually loudest over the site of the tumour; but in old and large aneurisms pointing anteriorly, it may be absent in this situation, and be audible only posteriorly. A bruit of any kind is not, however, essential; indeed when the sac attains a considerable size, or becomes partly filled with fibrine, it may altogether disappear. In a case of aneurism of the arch of the aorta recently in hospital, bruit de soufflet was never heard from the time the patient came under my care until his death, a period of about three months.

It was laid down by Laennec, and it has been echoed by succeeding writers, that a *single*, strong sound, synchronous with the first sound of the heart, is characteristic of aneurism of the arch of the aorta, pointing externally. This, however, is by no means the case; in every example which I have met with, the sound was double, and resembled that of the heart, and the first was or was not accompanied by bruit de soufflet or bruit de râpe; indeed it appears to be the exception to the general rule for the sound to be single in aneurism of this part of the vessel.

The first sound and the bruit which accompanies it are caused by the rapid passage of the blood during the ventricular systole into the aneurismal sac through an abnormal orifice; the proximity of the aneurism to the heart will also assist, owing to the first sound of this organ being communicated to it. Whether the murmur (which often accompanies it) be harsh and grating, or soft and blowing, will depend upon the size and shape of the orifice of communication between the sac and the artery; the roughness or smoothness of the lining membrane of the artery in its vicinity; the strength or feebleness of the contraction of the left ventricle; the condition of the blood, and the filled or unfilled state of the vessels.

The second sound heard in these cases is believed to depend upon that of the ventricular diastole being communicated to the sac from the

heart; it is generally not as loud as in the præcordial region, though I have heard it quite as distinctly, and it is sometimes even louder.

Dr. Stokes long since made the remark. that aneurism of the arch of the aorta is usually accompanied by a double sound, and that this is often audible in cases where "the aneurismal sac is at a distance from, or totally unconnected with the heart." He believes, therefore, that it cannot be explained by the contact of the aneurismal tumour with the heart. "The occurrence of a double pulsation similar to that of the heart (he observes) seems to prove that the action of a single cavity may, under certain circumstances, produce a double sound; and hence it appears probable that the division of the heart into auricle and ventricle is not necessary for its double sound." "It is not unlikely (he adds) that the mere systole and diastole of a single cavity, or of two cavities acting synchronously (as in the case of the ventricles) with the entrance and exit of a fluid, are all that are necessary for the production of the double sound." But in aneurism of the abdominal aorta, the sound is always single (except in certain rare cases where the sac presses against the diaphragm and pericardium), although it permits of the entrance and exit of the blood equally with an aneurism of the thoracic aorta, and I have heard the double sound well marked where an aneurism of the arch of the aorta was almost completely filled with fibrine, and where, consequently, very little blood could enter it. It appears to me, therefore, that the second sound heard in these cases depends upon the extension of the second sound of the heart along the aorta to the aneurismal sac; and that the cause is pretty nearly the same as where, owing to the deposition of tubercular or other solid matter in the lungs, the sounds of the heart are sometimes conveyed to a still greater distance. For this reason, a murmur never accompanies the second sound in aneurism of the thoracic aorta; and obviously could only be present if the second sound of the heart was accompanied by one. The double sound in aneurism of the arch of the aorta is distinguished from that of the heart by its intensity diminishing between the site of the aneurism and the heart, and by being audible in situations where the sounds of the heart are never heard in the normal state.

In aneurism of the ascending or transverse portion of the arch of the aorta, the trachea or large bronchi upon either side (but particularly the left) may be compressed, when certain auscultatory signs, having reference to the lungs, will be developed. Thus when one bronchial tube is compressed, the lung upon that side receives less air, and the respiratory murmur will be feeble, or entirely cease, in proportion to the amount of the obstruction; while in the opposite lung, which has increased duty to perform, the respiration will become puerile. If the calibre of the trachea is narrowed by such a cause, less air can penetrate the lungs, and the respiratory murmur will be feeble in both; while the passage of the air through the narrowed tubes will occasion a bronchial, sibilant, or wheezing râle, very audible on auscultation, and sometimes so loud as to be heard without the assistance of the stethoscope. Such cases are usually accompanied by cough, dyspnœa, and other signs which have been already alluded to in describing the general signs of aneurism of the arch of the aorta.

## SECT. V. DISEASES OF THE CHYLOPOIETIC SYSTEM.

ART. 15.—*On disorders of the Digestive Organs depending upon Anæmia.* By J. TURNBULL, M.D., Physician to the Liverpool Northern Hospital.

(*Lancet*, March 21, 1846.)

Anæmic disorders of the stomach may be observed in their simplest forms in cases of hemorrhage, as in the great losses of blood which frequently accompany parturition. The principal symptoms are uneasiness and feeling of weight after taking food, with flatulence, and in some cases even tenderness in the epigastrium.

The author remarks, that there are few cases of anæmia, in which there is not some disorder of the digestive apparatus. Uneasiness after meals, with flatulent distension, continuing until the process of digestion is completed, are the most common symptoms, but when the sensibility of the stomach is much increased, there is eructation of the food, from half an hour to an hour after every meal. This kind of rumination is very common in chlorosis. Digestion is, in many cases, not only performed with difficulty, but imperfectly, and there then is acidity or heartburn, with occasional pyrosis. In these cases the other chylopoietic viscera are likewise more or less deranged; the liver is torpid, and the bowels almost always constipated. The latter symptom seems to arise mainly from loss of tone in the muscular fibres of the intestines.

The appetite is generally deficient, and often perverted, but the most important point connected with this function, to which the author directs attention, is the great aversion to animal food, which is often almost invincible. With respect to the state of the tongue, it may be stated that almost every variety of appearance is occasionally noticed. It may be either slightly coated with a whitish or yellowish fur, or it may be quite clean and natural. It is frequently tremulous, œdematous, and indented by the teeth. In other but more rare cases the organ appears small and contracted. The papillæ towards the point are often unnaturally prominent, and may be seen shining through the white fur. In old-standing cases the tongue assumes a cracked and remarkable appearance.

The author proceeds to observe that this state of deranged digestion, which is identical with that commonly known as atonic indigestion, does not always exist in a simple form. The torpid condition of the digestive canal, with the consequent accumulation of its secretions, sometimes induces irritation of one or other portion of its structure, and we have there superadded to the weakness of the digestive organs that form of dyspepsia which has been called irritative or inflammatory. This complication is strictly to be remembered in the treatment, and it is requisite to associate with, or follow up the antiphlogistic regimen by, the use of tonics. This complication has frequently been observed by the author in females subject to profuse menstruation.

One of the most troublesome symptoms in anæmic dyspepsia is *gastrodynia*, which depends upon the increased sensibility of the gastric nerves. In its treatment, the author properly objects to the use of leeches as likely to aggravate the symptom, and, therefore, urges the importance of carefully distinguishing the pain from that of chronic gastritis. He regards the existence of the venous murmur as of great assistance in the diagnosis.

In discussing the question whether the continuance of the anæmic dyspepsia tends to the production of structural changes in the stomach, the author regards as correct the common opinion that it does not; he states, however, that as hematemesis is an occasional accompaniment of the affection in question, it is fair to conclude that in some cases ulceration of the stomach may be induced. In confirmation of this opinion, he alludes to the comparative frequency of perforation of the stomach in chlorotic females, as ascertained by Mr. Crisp. ['Abstract,' vol. ii, p. 41.]

## Art. 16.—*On the Medical Treatment of Dyspepsia.*

By Thomas Barbour, M.D., Professor of Obstetrics, &c. in the Medical Department of Kemper College, St. Louis, Mo.

(*Boston Med. and Surg. Journal*, Jan. 1846.)

As dyspepsia is a most painful and afflicting malady, the unfortunate subjects of which are but too often doomed, under the ordinary modes of management, to endure a bodily and mental distress, which renders life hateful and undesirable, any suggestion which might conduce to its relief should be acceptable to the profession. Dr. John McIntosh remarks, that "the physician, to be able effectually to treat this affection, should have suffered from it himself; as one who has had the good fortune never to feel as if he had a stomach, can scarcely believe or listen to the complaints of those who have experienced that sensation." Having had sad *personal* experience, and having had the gratification of affording relief to many sufferers by the means which proved so beneficial in my own case, I desire to make known the plan of treatment which I pursue, and which I feel justified in recommending as eminently successful.

It is not my design to enter into the regular consideration of the symptoms and pathology of dyspepsia, which has been so ably and elaborately discussed in late treatises on the subject, but I will assume that the affection usually presents itself under two forms:

1. *Functional*, of which there are two principal modifications; the first variety I would designate *nervous*, and is characterized by great morbid sensibility of the nerves of the stomach, evidenced by very acute pain, which is frequently paroxysmal in its character, associated with most of the ordinary symptoms of dyspepsia. The second variety of the functional form I would call *atonic*, and it is characterized by atony of the mucous membrane and muscular fibres of the stomach, and a moderate degree of nervous irritation.

2. *Organic*, characterized by the ordinary signs and symptoms of chronic muco-gastritis; the most prominent of which are epigastric tenderness, and tongue furred, and slightly red on the tip and edges.

In the first variety of the functional form, I administer the following combination: 1st. R. hydrarg. prot. iod., 15 grs.; ext. rhei, ½ dr.; ext. hyoscyam., 1 dr., made into 30 pills, of which I give one or two every night, or every other night, to regulate the bowels, and improve the biliary secretion. If the bowels be torpid, I substitute the compound ext. of colocynth for the ext. rhei, in the same proportion. 2d. R. Bismuth sub. nit., 2 drs.; morph. acet., 3 grs., made into 30 pills, of which I give two or three, morning, noon, and night. If the pill form is disagreeable, I order the above to be made into 12 powders, of which one may be taken thrice daily.

The sub-nitrate of bismuth is highly recommended by the best writers on the Materia Medica, in many of the chronic derangements of the

stomach, especially in dyspepsia, attended with gastrodynia, or pyrosis. Prof. Chapman, who is a preeminently high authority, speaks of it in the most favorable terms; the distinguished authors of the United States Dispensatory especially commend it to the attention of the profession; and Pereira, the highest European authority, considers it of great value in gastric disorders; yet, strange to say, but few physicians have confidence in it, or ever think of using it. I regard this agent as the *most valuable* which we possess in the different forms of chronic gastric derangements. It is antacid in its properties, and tends to relieve the uneasy sensations arising from free acid in the stomach; but I attribute its chief efficacy to its tonic and nervine agency. Whatever may be its *modus operandi*, it is certain that, in my own case, and in others of a most serious character which have come under my care, it acted like a charm. In regard to the dose, we should be governed by the severity of pain. Ordinarily ten grains three times a day will suffice; if, however, the pain is very intense, amounting to what is termed gastrodynia, I would not hesitate to give 20 or even 30 grains at a dose. I use it, also, in large doses for the relief of pyrosis. In the second variety of the *functional* form, namely, the atonic, I prescribe the following: 1st. R. Hydrarg. prot. iod., 15 grs.; ext. colocynth comp. ½ dr.; ext. hyoscyam., 1 dr., made into 30 pills, of which I give one or two every night, or every other night, according to the torpor of the liver and bowels. 2d. R. bismuth sub. nit., 2 dr.; sulph. quinæ, ½ dr.; ol. menth. pip., gtts. xx., made into 36 pills, of which I give two or three, morning, noon, and night; or divide the above into 12 powders, and give one thrice daily.

In the second, or *organic* form, characterized by the signs of chronic muco-gastritis, I would advise full doses of opium—say 4 grains with 10 of pil. hydrarg., occasionally repeated, after which, mild aperients or purgative enemata, and the free application of tartar emetic ointment on the epigastrium. When the inflammatory condition of the stomach has been, in a good degree, relieved, I would then use the two prescriptions for the prot. iodide of mercury, and sub. nitrate of bismuth, as already given for the first variety of the *functional* form of the disease.

In the conclusion of this very brief sketch of the treatment of dyspepsia, I will remark that the experience of fifteen years has confirmed me in the belief that the above plan, if sufficiently persevered in, *together with proper dietetic measures*, will prove successful in every case in which serious structural disease of the stomach does not exist.

[If the author's remarks express the general experience of American physicians they are greatly behind the British practitioner in their acquaintance with the properties of bismuth.]

## Art. 17.—*On Cancer of the Stomach.* By Walter Hayle Walshe, M.D., Physician to the Hospital for Consumption, &c.*

[The substance of the following article is taken from section x of the author's late admirable work on Cancer.]

The stomach is, next to the uterus, the organ most frequently the seat of cancer, of 8289 deaths from cancer in Paris, 2303 are referred to the disease attacking the stomach. This is sometimes the only organ affected;

* Nature and Treatment of Cancer. Lond 1846, p. 278.

but (according to the author's experience) the disease will more generally be found to coexist in one or more of the following parts: the liver, duodenum, lymphatic glands, lungs, supra-renal capsules, and prostate gland. Cancer of the stomach is generally the primary affection; it is rarely known as a secondary occurrence, except by continuity of structure.

The pylorus is the part of the stomach most commonly affected; next in order comes the cardial orifice; then the greater, and lastly, the lesser curvature. The anatomical seat of the disease, in the first instance, is the submucous tissue, but the other structures subsequently become contaminated. Dr. Walshe notices the great resistance offered by the mucous membrane to the aggression of cancer, having seen it slow in ulcerating, even when the immediate substance consists entirely of cancerous deposit.

The author, in common with preceding writers, recognizes three epochs in the process of the malady. During the first of these, various dyspeptic symptoms exist; the tongue is pale; the mouth clammy and disagreeable in the morning; the appetite is variable; digestion laborious and slow; a sensation of weight or slight pain is felt in epigastrio; gaseous eructations, either acrid or fetid, with occasional pyrosis, are among the more constant symptoms; the bowels are constipated. In the second degree, the severity of the epigastric pain is increased; the appetite fails completely; fetid eructations are more frequent; vomiting of matters, variously discoloured, ensues, and careful manual examination discovers a tumour in connexion with the stomach. The system begins to sympathize in a marked manner. Finally, the intensity of the symptoms increases; constipation alternates with diarrhœa; the pain becomes unendurable; hiccup supervenes, and all species of food is vomited. The patient eventually perishes in a state of marasmus.

Dr. Walshe, in admitting the above as the more constant phenomena of the disease, submits them to analysis. Thus, the epigastric pain may be absent from first to last; it is in other cases lancinating, and extends in various directions. Tenderness in the epigastrium may likewise be absent, even when a tumour is distinctly perceptible in that situation. The dyspeptic symptoms are liable to striking variations, and are by no means in all cases proportionate to the amount of mischief. Nausea and vomiting may be entirely absent, as is proved by the record of numerous cases. These symptoms, moreover, though urgent in the commencement, may cease entirely before the termination of the case; this depends upon the pyloric orifice being rendered again more pervious by ulceration.

If vomiting do not occur, it may be inferred that the pylorus is free. If there be intense nausea, with only the discharge of glairy matters, the disease may be suspected to occupy the cardiac orifice. Again, if abundant vomiting occur periodically, it is to be presumed that considerable dilatation of the stomach coexists with narrowing of the pylorus. When under the latter circumstances the stomach retains its natural size, or is diminished in capacity, vomiting takes place shortly after taking food.

The nature of the vomited matters varies. At first composed of glairy matters, they subsequently contain imperfectly digested food. At a later period they become coloured blackish from admixture of altered blood, forming the so-called coffee-ground vomitings. This quantity expelled varies from a few spoonsful to several pints.

The course of gastric cancer, instead of being uniformly progressive, may be intermittent. The author explains this upon the supposition,

that the orifices become enlarged by the progress of ulceration. "Be this as it may," he observes, "the physician should never lose sight of the fact, that in many recorded cases of gastric cancer, the suspension of the symptoms has been so complete, that the disease was suspected to have been misunderstood, and to have been nothing more than irritative dyspepsia."

A number of different affections have been mistaken for cancer of the stomach, and *vice versa*. The most important of these affections in practice are *gastrodynia* and *chronic gastritis*. The author thus enumerates the points of distinction:

| GASTRODYNIA. | CHRONIC GASTRITIS. | GASTRIC CANCER. |
|---|---|---|
| Tongue variable, but often pale and pitted at the edges. | Tongue dry, red, contracted, smooth, and shining. | Tongue pale or natural. |
| Eructation frequent of air without fætor. | Eructation not a prominent symptom. | Eructation of more or less fetid air, a prominent symptom. |
| Appetite depraved, irregular, capricious. | | Appetite diminished or suppressed. |
| Sensations sometimes of heat, sometimes of cold in the stomach; thirst not common. | Sensation of heat in the stomach; thirst. | These symptoms not observed. |
| Solids more easily digested than liquids. | | Liquids more easily digested than solids. |
| Pain variable; occurs in paroxysms; often relieved by food or pressure. | Epigastric pain not severe, and seldom felt when the stomach is empty; is created by pressure. | Pain sometimes agonising; lancinating. |
| Never latent. | Never latent. | Often latent for a variable period. |
| Vomiting not common. | Vomiting sometimes the first symptom; occurs irregularly. | Vomiting never the first symptom; occurs generally early in the morning, subsequently at variable periods. |
| Coffee-ground vomiting accidental. | Coffee-ground vomiting accidental. | Matters vomited, at first glairy, then half-digested food, at length coffee-ground. |
| Fever rare and accidental. | Evening fever not uncommon. | Fever absent. |
| In females a chlorotic tint is often present. | Violet discoloration of lips and face often present. | Straw-coloured tinge of the skin may be obvious. |
| Is more common in women. | Of a great frequency in both sexes. | More frequent in men than in woman. |
| May exist in young subjects. | Occurs at all ages. | Rare before 30. |
| Is not hereditary. | Is not hereditary. | Is occasionally hereditary. |
| Is relieved or cured by stimulant tonic and anodyne regimen. | Is relieved by antiphlogistic regimen. | Is not cured, but relieved by special treatment. |

The author admits, that although the above array of distinctive symptoms may look well on paper, that even after a due consideration of all of them at the bedside, the case will sometimes be doubtful. He regards the occurrence of tension and gurgling under pressure, with periodical profuse vomitings, as conclusive if a *tumour* be present in the epigastrium at the same time, but without this the preceding symptoms are inconclusive.

With regard to treatment, as might be expected, the author has little to advance. He regards conium as one of the only medicines possessing any value. Palliation is most frequently effected by attention to nervous symptoms. A combination of bismuth, with the extracts of hops, stramonium and conium, has been used by him with temporary benefit. Leeches and blisters to the epigastrium are recommended if much tenderness on pressure exists. The internal use of opium is contraindicated by the obstinate state of the bowels.

The symptoms for which relief is most earnestly sought, are flatulence, vomiting, and constipation; for the former, a drop or two of the oil of cajeput on sugar has been found useful by the author; but he advises attention to diet as the best means of obviating the symptom. Nausea and vomiting may be relieved by effervescing draughts, prussic acid, ice allowed to melt in the mouth and applied externally. Creosote will also frequently arrest the sickness for a time.

The food should be taken in small quantities at a time, but in other respects no general rules can be given. The cancerous stomach, observes Dr. Walshe, like the healthy organ, has its *idiosyncrasy*, which is only to be discovered by experience.

## Art. 18.—*On Fatty Degeneration of the Liver.* By Dr. Horaczek.

(*Wien. Zeitschrift* ii, 3, and *Schmidt's Jahrbücher*, 46 Band. 1845,)

The term "fatty degeneration" of the liver, is used to designate that particular disease of the organ which manifests itself by the regular deposition of fat within its tissues, in connexion with certain other anatomical changes. It in general appears as one of the many phases of the tuberculous cachexia; but in more rare instances it develops itself independently of other affections, and may be recognised by a determinate group of symptoms, differing however according to the different stages and varying intensity of the disease. The latter form is the one of which the author principally treats in the following essay, although he casually refers to it, as it appears in connexion with other lesions.

The *anatomical characters* of fatty liver are stated to consist in an increase of the entire volume of the organ, together with an alteration in form, colour, and density. The edges become rounded and flattened, so that the organ assumes the shape of an irregular square. At an advanced stage it becomes of an uniform pale yellow colour, but in lower degrees of the disease it has a mottled appearance, not unlike the so-called "nutmeg" liver. This colour, upon examination, is found to depend upon the deposition of fat in the meshes of the cellular tissue, which is frequently so abundant as to completely obliterate the proper hepatic structure. The large blood-vessels appear for the most part to be

permeable, but the capillaries are more or less compressed. The blood is viscid and dark, and under the microscope exhibits the presence of fat globules. The gall-bladder is in general either nearly empty, or contains a small quantity of pitchy bile. In the commencement of the disease, there is a general tendency to the deposition of fat throughout the system, but in its latter periods the opposite condition prevails. Among the complications of fatty liver, the author has observed pure hypertrophy, cirrhosis, and purulent infiltration in the liver itself; gall-stones, pneumonia, pleurisy, granular kidney, hypertrophy of the spleen, and various forms of cardiac disease.

*Symptomalology.*—The approaches of this disease are so insidious, that they are readily overlooked. One of its first symptoms is disturbed digestion, indicated by loss of appetite, alternating with voracity, nausea, and vomiting of a watery tasteless fluid. Food which was formerly taken with relish now excites eructations, as long as 24 hours after its ingestion. At this time also the right hypochondrium will be found to bulge outwards, and the patient complains of a feeling of weight and oppression, aggravated by decubitus on the left side. To this a short cough and dyspnœa are frequently added.

After a time of longer or shorter duration, the digestive functions become still further impaired. The tongue usually appears clean, but dry, harsh, and occasionally aphthous; the bowels are generally sluggish, but the motions are seldom deficient in bile. The urine is diminished in quantity, and of a high colour and turbid; its surface is frequently covered with a fatty iridescent film. The patient often complains of a numbness and pricking sensation in the hands and feet. The fat of the body is gradually absorbed, and the skin becomes dry. The biliary secretion is, comparatively speaking, but little affected, unless some other lesion of the liver be conjoined; for this reason jaundice is very rarely observed.

*Causes.*—The principal causes of fatty liver are to be found in the presence of the tuberculous or scrofulous diathesis, rachitis, inveterate syphilis, typhus, mercurial cachexia, &c. As additional causes may be mentioned—imperfect and irregular nourishment, abuse of ardent spirits, and want of exercise. Females are more liable to the disease than males, and it is principally seen in persons of the leuco-phlegmatic habit.

*Treatment.*—Great care is requisite in the mode of life of persons predisposed to fatty liver. All stimulating, as well as greasy food, should be avoided, and water should form the sole beverage. Cheerful employment of the mind and free exercise of the body are also essential to successful treatment. Digestion should be assisted by light vegetable tonics, and afterwards by the preparations of iron. The liver itself is to be acted upon by rhubarb and aloes, and by occasional gentle emetics. This treatment is, of course, principally prophylactic; when organic change has taken place in the organ, medicine exercises but little influence.

ART. 19.—*Clinical Observations on Jaundice.* By Dr. DUNGLISON.

(*Philadelphia Med. Exam.* and *Dublin Med. Press.* Nov. 19, 1845.)

Considerable diserepaney has existed among writers as to the eause of the yellowness of the surfaee in jaundiee. The professor thinks it is in every ease attributable to the presenee of bile in the blood. Some, however, who believe that no foreign material ean be absorbed into the blood unchanged, without injurious eonsequenees to the economy, aseribe it to a disease of the red eorpuseles of the blood; but that the serum alone is tinged, and that the hue is owing to the presenee of bile, seems proved by the greenish eolour whieh jaundieed serum assumes on the addition of nitrie aeid. Moreover, when the red corpuseles are examined by the mieroscope, they appear to be unehanged.

The eonsideration of the phenomena of jaundice would seem to eonfirm this view of its pathology. All the tissues are tinged yellow, whieh is easily explieable, if we suppose the bile to be eireulating through them. The seeretions are also altered in eolour, and espeeially the urine, whieh, on the addition of nitrie aeid, passes through a variety of shades, from mahogany to green, blue, and almost blaek. This faet, and the tinge communieated to the linen, seem to show, that the colouring matter of the bile is eontained in the urine. On the subsidence of the jaundiee, it assumes its natural eolour. Moreover, the globules, if diseased, eould not produee the eolour, as they are not eontained in the renal seeretion. Again, in many eases of jaundiee, some obstruetion is found to exist, whieh prevents the ready passage of the bile into the intestines, as indieated by the white or elay-eoloured stools. Should there be sueh obstruetion, it is not difficult to understand that the bile might pass by exosmose through the eoats of the duets, and by endosmose enter the blood-vessels, and give rise to jaundiee.

Not only, however, may the bile, after being seereted, be reabsorbed by the blood-vessels; from a diseased eondition of the liver, whieh prevents its seeretion, the elements may eome together at the point at whieh they should have been separated; and instead of being eliminated, may remain in the fluid of the eireulation, as, under certain conditions, urea or kiesteine colleets in the blood, and in sueh ease jaundiee may result.

The symptoms are usually well marked. At first there is loss of appetite, with pain in the hypoehondrium or epigastrium, or both; uneasiness in the head, lassitude, and more or less depression of spirits. These symptoms eontinue for a longer or shorter period, when the eyes and skin are observed to be yellow. The urine is yellow, or of a mahogany eolour, tinging the linen with whieh it may eome in eontaet. The bowels are generally eonstipated from a want of the usual seeretions, and the fæees are whitish or elay-eoloured. Pressure will frequently eause pain of the epigastrium, and if the liver be inflamed or diseased, there will be pain in the right hypoehondrium, augmented on pressure. There is not unfrequently, also, delirium or disturbanee of the eerebral funetions, and even coma, the eonsequence of the eireulation of bile through the eneephalie neurine.

Coma is a most unfavorable symptom, and is regarded by Dr. Stokes as prognostic of a fatal termination. He states, indeed, that he never knew a case where it was well marked which recovered. The experience of the lecturer is not exactly in accordance with that of Dr. Stokes. Although he considers coma a very grave symptom, it is not necessarily fatal. Much difficulty exists in explaining the immediate cause of this coma, as nothing satisfactory is found on a post-mortem examination.

The causes of jaundice are numerous. Among the most frequent may be mentioned inflammation, or irritation of the gastro-enteric mucous membrane, which is extended by continuous sympathy to the liver. Obstructions of any kind to the passage of the bile along the ducts to the intestine must also be a common cause; it is easy to understand, that if a gall-stone should form in the gall-bladder, and subsequently pass into the duct and obstruct it, absorption of the bile might ensue, and give rise to the disease. The same would be the effect of biliary concretions forming in the hepatic ducts, or in the ductus communis choledochus.

The diagnosis of the passage of gall-stones is readily made. The patient is found writhing in agony on the floor, with his pulse unexcited, and with violent pain in the epigastrium or right hypochondrium, which is augmented in paroxysms.

After the symptoms indicating "hepatic colic" have continued for a longer or a shorter time, they may cease, and after a varying period recur. The cause of this cessation appears at times to be owing to the entrance of the concretion into the ductus communis choledochus; and the renewal of the pain to its passage through the extremity of that duct, which is smaller than the other portions. Having cleared the duct, it enters the duodenum; the patient is now free from any further pain, unless there be other concretions passing. If the alvine evacuations be examined, the gall-stone may be detected; yet we may fail in so doing, although the symptoms may have been unequivocal.

In some cases of jaundice, the peculiar phenomenon of yellow vision is present. It is rare, however, and Frank states it to occur in only five cases in a thousand; and the lecturer remarked that he never had seen a case of it. The cause of yellow vision has occasioned considerable dispute. We can conceive, that should the humours of the eye become tinged, it might occur; but it may be a nervous affection, as it is sometimes seen in adynamic fever.

The treatment of gall-stone will depend on the period of the disease. During its passage, anti-spasmodics, so called, are manifestly indicated, not articles, usually classed as such, but those agencies that relax the system, such as bloodletting, the warm bath, &c. To allay spasm and pain, opium should be given in full doses, and repeated until the desired effect is produced. It is astonishing how much opium may be administered in these and other spasmodic affections, without inducing narcosis.

Conjoined with these means, others may be adopted that will favour the progression of the gall-stones, as emetics, cathartics, &c. By the efforts of vomiting, the peristaltic action of the intestine is inverted, and a degree of traction is exerted on the biliary passages that may favour

the transit of the stone. Cathartics, also, by accelerating peristaltic action will have a similar effect, though to a less extent.

Should great tenderness exist over the epigastrium, venesection may be advantageously resorted to, which, as before stated, may also exert a relaxing influence on the spasm.

Should the patient be debilitated, or of broken down constitution, we should pause before resorting to emetics, as there may be risk of rupturing the ducts. In such cases it is safer to have recourse to purgation; but this also must not be carried too far. If there exist no contraindication, a mercurial cathartic, which acts upon the upper portion of the intestinal canal, may be given, followed by a saline cathartic.

When the liver is seriously diseased, articles that stimulate it to augmented secretion should not be given too freely, for manifest reasons.

When jaundice is not complicated or connected with the passage of biliary calculi, the treatment will of course be somewhat different from that just detailed.

The majority of cases of simple jaundice demand no treatment, and will gradually pass away of themselves. It is the usual practice, however, to give mercurials, to excite the liver, if it be torpid; purgatives to obviate constipation, and under the views mentioned above, tonics to support the energies of the constitution.

In all cases, the presence of bile in the blood is a mere epiphenomenon, and therefore demands no special attention. The treatment should generally be temporizing. The cause should, of course, be always inquired into, and if possible removed. The simple fact, however, of a person having jaundice, is not a sufficient indication that mercurials or any other special remedies are required. If disease of the liver exist, it may not be improper or injudicious to prescribe small doses of calomel or blue pill to produce a new action, but it should only be carried so far as to affect the mouth slightly. In the greater number of instances, there is no manifest pathological condition to be treated, and if nothing be given, the jaundice will usually disappear in course of time.

If this be the condition in most cases of jaundice, how absurd the remedies that have been employed, and not long since, to remove obstructions which were fancied to exist in the ducts in every case; when ether and turpentine were given in the form of the Remède de Durande, still recommended by some, with the intention of dissolving gall-stones? The cases often recovered, but the result was in no wise effected by the remedy. How could it be expected that thirty drops of turpentine and ether should have any action on a stone in the hepatic duct? How could they pass in a state of concentration through the stomach and duodenum into the duct, come in contact with the obstruction, and dissolve it? These agents are now rarely used by any one; and it need scarcely be added, that nothing can be given as a solvent for concretions in the gall-ducts.

The lecturer stated, that there was never ground for uneasiness in cases of jaundice, unless when dependent on serious organic disease of the liver, which is usually accompanied by dropsy, or when produced by obstructions of the biliary ducts in those of broken down constitutions.

The lecture was concluded by a few observations on the jaundice of the infant, commonly known as the "yellow gum"—the term "gum" probably being a corruption of "gown," the infant seeming to be covered with the yellowness as with a "gown." It is not an uncommon occurrence in children soon after birth, and, after continuing for a short time, it usually disappears of itself.

The child is generally drowsy and languid during its continuance, but the affection is rarely serious. It is very common in hot climates and in the warmer portions of this country.

The lecturer never saw a case which was of any importance. It seems to be dependent upon obstruction to the flow of bile, by a collection of viscid meconium or mucus, where the ductus communis choledochus opens into the duodenum.

The only treatment demanded is the administration of a gentle cathartic, as castor-oil, or rhubarb and magnesia, to clear away the matters collected in the intestines.

## Art. 20.—*On the Treatment of Constipation from Inertia of the Bowels.*

By Dr. Teissier.

(*Encyclograph. Médicale*, Dec. 1845, and *Annuaire de Méd. et de Chirur. Pratiq.* 1846. *Lancet*, Dec. 13, 1845.)

Dr. Teissier, assistant-physician to the Hôtel Dieu, at Lyons, has published, in the last number of the 'Journal de Médecine' of that town, an interesting article on the treatment of constipation from indolence of the bowels. This form is undoubtedly the one most frequently met with in practice. It is a frequent cause of ailments, which, when misunderstood, in the end seriously affect the health. The disease is very frequently met with among persons advanced in age, and among the hypochondriacal, in females, particularly those affected with chlorosis or disease of the uterus; in individuals who do not take sufficient exercise; and in those who devote themselves especially to literature. It accompanies, almost invariably, all serious affections of the nervous system, and, above all, paraplegia. It produces headaches, indigestion, painful hemorrhoidal tumours, displacement of the uterus, sanguineous discharges, and leucorrhœa, in females, and in extreme cases may lead to marasmus. It is most important, then, to be able to recognize the sort of constipation of which we speak, and, above all, to know the most effectual means to remove it.

The directions given by most authors, for this last purpose, are in general of little use; sometimes they are even hurtful and dangerous. In fact, the means most frequently recommended are oily enemata, or simple lavements of decoction of mallow, of bran, &c., at the temperature of at least from 80 to 86 deg. F.; and later, when these lavements fail to unload the bowels, manna, senna, tamarinds, rhubarb, castor-oil, Seidlitz water, scammony, in short, all sorts of laxatives, or even the most drastic purgatives, are recommended.

Now it is at present recognised as a fact among all practitioners of experience, that in the sort of constipation here treated of, the use of warm injections is hurtful, because, as it depends on a sort of atony, or

indolence of the muscular fibres of the bowels, the more you inject warm water into them, the more the muscular fibres are lengthened, distended, softened, and deprived of their contractile power. It is known, also, that the use of purgatives, far from being beneficial in this sort of constipation, is, on the contrary, very prejudicial, inasmuch as they blunt the sensibility of the coats of the bowels, which at length become insensible to the stimulus of the fæcal bolus; besides this, their continued use may violently irritate the bowels. But this is not all, for, as Teissier remarks, the authors who most strongly advocate the use of purgatives in this disease, acknowledge also the inconvenience arising from the use of such substances in a great many cases.

Beyond these means it might truly be said that no resource remains. But science is not so powerless as might at first be supposed; nay, numerous useful means exist, of which the three principal are nux vomica, cold lavements, and astringents, which Dr. Teissier, on the recommendation of some authors, has employed in several cases, and with apparently happy effects.

Schmidtmann was the first to recommend the use of nux vomica in cases of sluggish digestion, with flatulence, distension of the bowels, and constipation. Teissier cites four cases, which show that this substance has been equally successful in his hands under like circumstances. In the first case, that of a female, the sluggishness of the bowel was caused by the existence of syphilitic excrescences at the anus, with thickening of the rectum in its whole circumference, which for more than a year caused great difficulty in defæcation. After the venereal affection was cured the constipation continued, and resisted all the means used to overcome it. Dr. Teissier, having remarked that the introduction into the anus of tents (mèches) for several successive days, and cold lavements, had in some degree relieved the constipation, was led to think that these means had only acted by rousing the contractile power of the large intestine, and that that end would be more fully attained by administering the nux vomica. He accordingly gave his patient, every morning, in a pill, nearly the fifth of a grain (one centigramme) of the extract of this substance. Under the use of the nux vomica, in this dose, for a fortnight, the constipation entirely disappeared, and a year has now passed without any relapse. From time to time, merely, when the bowels are inclined to become sluggish, the patient takes one of the pills as above, and the next day the usual evacuation takes place. In the second case, the constipation, which was of long standing, was complicated with disorder of the stomach, referred to supposed gastritis. The patient was at first put on low diet, emollient injections, and the white meats, which only increased the sluggishness of the bowels. Recourse was then had to various other means, which relieved the gastric symptoms, without entirely curing them, but had no effect on the constipation. Dr. Teissier, seeing the little success attending this mode of treatment, had recourse to full diet, and the use of the extract of nux vomica, in the dose of the fifth of a grain daily. In less than fifteen days the constipation and the other symptoms had almost entirely disappeared, and in less than a month convalescence was complete. In the two other cases the result was the same. It must not, however, be supposed that the remedy is infallible; the doctor admits that he has seen it fail in the case of nervous indivi-

duals suffering from obstinate constipation. He thinks it is particularly indicated in those cases where there is reason to suspect a general want of tone in the bowels, as in the paralytic, or in old persons, or where we may suspect a want of tone of the muscular coat of the intestine, in consequence of great and long-continued distension, or, in short, when the constipation can be referred to an undue secretion of gas, which, of itself, by causing distension of the bowels, diminishes their contractile power.

Injections of cold water, better known than nux vomica, constitute likewise a valuable resource against constipation from want of tone. Of late years they have been much vaunted; but nevertheless they are as yet but rarely used in practice. They act somewhat in the same way as the nux vomica in rousing the sensibility and the contractile power of the intestine. Our author does not, however, consider that the two remedies ought to be used indiscriminately under the same circumstances; he thinks the cold injections particularly suitable to individuals of a nervous, highly irritable temperament; to the hypochondriacal, and to females suffering from irritation or engorgement of the womb.

Females who have contracted the pernicious habit of taking a warm enema daily, and who have thus lost the power of evacuating the bowels by the sole efforts of nature, ought to substitute cold for warm water; they would thus more easily attain the end they have in view, and avoid the inconvenience of diminishing more and more every day the contractile force of the muscular fibres of the bowels, and thereby increasing the degree of constipation. In general, cold injections are very harmless and very well borne; they produce, however, in some individuals an uncomfortable sensation of cold in the bowels and loins, which may continue for an hour or two. Sometimes they produce pain in the bowels, and slight diarrhœa; in this case, all that is required is to discontinue them for a time, and to use them only every third or fourth day, instead of daily. In the case of patients in whom there is little reaction against cold, it is better not to prescribe water at the ordinary temperature at once, but to begin with it at the degree of 68 Fahr., gradually coming down to 64 deg., 59 deg., and 53 deg., till at length water of the natural temperature may be used.

Astringent injections are also highly useful, under certain circumstances, in relieving constipation. Bretonneau was the first to establish this new and important fact, which has been again brought forward by Trousseau and Pidoux, in their 'Treatise on Therapeutics,' but without its having been as yet generally adopted in practice. One can readily imagine the reluctance some medical men have to recommend, in constipation, injections containing the substances they are in the habit of prescribing in diarrhœa, such as catechu, krameria, alum, &c. But if we reflected, that in persons who have long suffered from constipation, particularly females, the rectum forms above the sphincter a pouch, sometimes of considerable size, in consequence of the distension from accumulated fæces, to which the coats of the bowels have been subjected, we should be less surprised that the idea has occurred to have recourse to the injection into the rectum of tonic and astringent substances, with the view of causing corrugation of the muscular fibres of the bowels, which, by corrugating, become shorter, and thus diminish the enlargement of the cul-de-sac now spoken of.

Astringent injections are particularly suitable in cases where there is reason to suspect an abnormal dilatation of the lower portion of the rectum; for instance, in constipation from the presence of a mechanical obstacle at the anus, caused by hemorrhoidal tumours, swellings of a venereal or cancerous character, or contraction of the sphincter with or without fissure. These injections are moreover suitable, for the same reason, to females in whom constipation exists, along with engorgement or retroversion of the uterus, and to all those persons who, having their bowels relieved only once in eight or ten days, void, after painful efforts, which can be compared to nothing but a sort of parturition, an enormous mass of hardened and dry fæces. In all these cases it is of consequence to rouse the tonic action of the muscular bands of the large intestine, and this indication is well fulfilled by astringent injections.

The ingredients of these injections may be infinitely varied; they may be composed of red roses, krameria, oak-bark, bistorta, catechu, alum, &c. The following is Teissier's mode of proceeding. He begins with the simple infusion of roses, cold, and at the end of a few days he adds to each injection from fifteen to thirty grains of the extract of ratanhy. He thinks that in obstinate cases a minute portion of the extract of nux vomica—one seventh or two sevenths of a grain for instance—might be added with advantage to each enema. He considers also that they should measure ten or twelve ounces, so that they may not be retained many minutes; that their action may be of short duration, and that the muscular fibres of the bowels may be allowed readily to contract themselves. The nux vomica, the cold, and the astringent injections are not certainly the only means at the disposal of the practitioner in the constipation we are now treating of; but they are those of which our author has had most experience, and from which he has derived most success. We must not forget here the means proposed lately by Fleury, viz. the introduction of tents into the rectum, which, acting as a foreign body, stimulate the bowel by their contact, and rouse its contractile power; nor the shampooing of the rectum, proposed by Recamier; nor, lastly, inspissated ox-gall.

## Art. 21.—*On the Value of Abdominal Tenderness as a sign of Enteric Inflammation.* By Dr. A. Griffin.*

[The importance of a correct appreciation of this point cannot be too strongly enforced, especially upon the young practitioner, whose mind has been deeply imbued during his pupilage with those strongly-marked definitions and descriptions of disease which are seldom found to exist beyond the limits of the lecture-room, and which he will be disappointed in finding in a great measure falsified in the first cases of actual disease which he is called upon to witness. The following observations respecting the diagnostic value of abdominal tenderness may materially assist in the formation of correct notions upon the subject. Dr. Griffin remarks:]

"In determining the diagnosis of abdominal inflammation, where both pain and tenderness on pressure exist, we should always endeavour to

* Medical and Physiological Problems, p. 59.

ascertain—1. Whether there be any pain or tenderness on pressure in the corresponding portion of the spinal column; because if there be, although it may not absolutely decide whether inflammation be present or not, it is quite sufficient to account both for the pain and tenderness, without assuming the existence of any inflammation. 2. Whether, if there be no spinal tenderness or pain, the soreness of the abdomen be superficial and deep-seated, which may be ascertained with tolerably certainty in all cases, by an examination directed to that end. And whether, if both superficial and deep-seated, as it usually is in peritoneal inflammation, gentle, steady pressure, with the flat of the hand, can be easier borne than with the points of the fingers. In pain and soreness from an affection of the spinal nerves, it commonly can be so borne, while in peritonitis every kind of pressure, even the weight of the bed-clothes, is distressing. 3. Whether the boundaries of the pain and soreness extend beyond what the suspected inflammation would produce? Thus, if inflammation of the liver be suspected, and we find the soreness extending to the ileum or groin, or to the opposite side of the body, it is obvious that the soreness cannot be attributed to mere soreness of that organ. Again, if the whole abdomen be tender to the touch, in a case otherwise closely resembling peritonitis, and we find that the tenderness is not confined to the abdomen, but extends over the hips and lower extremities, it is obvious that we can attach no importance to the abdominal soreness as a sign of inflammation. Finally, it should be recollected, that constipation may depend upon mere loss of power in the intestinal nerves, as well as on spasm, obstruction, or inflammation, since the treatment in each case must necessarily be modified, or directed by the supposed cause of this symptom."

---

## SECT. VI. DISEASES OF THE GENITO-URINARY SYSTEM.

### ART. 22.—*On Dropsy with Albuminous Urine.*

By Dr. TODD, Physician to King's College Hospital, &c. &c.

(*Medical Gazette*, December 19, 1845.)

[In a clinical lecture upon the interesting disease to which the term "Mortius Brightii" has been applied, the lecturer draws the attention of his hearers to a series of cases exemplifying the different forms which it is apt to assume. He then introduces the following account of the anatomy of the kidneys, which, as it is absolutely necessary to be well known and remembered, in order that the pathology of the disease in question should be understood, we shall briefly recapitulate:]

1. *The secretory apparatus of the kidney* consists of convoluted tubes, each of which, at its connection with the vascular system, exhibits a cyst-like dilatation inclosing the Malpighian tuft, or extremity of the vascular plexus, called the Malpighian plexus. These tubes, which form the bulk of the kidney, consist of a basement membrane lined with cells of epithelium, which are the main agents in secretion of the urine.

2. *The vascular apparatus* consists of arteries and veins; the renal artery divides and subdivides until its terminal ramifications become the Malpighian arteries, each of which by its expanded extremity or tuft pierces the cyst-like development of the uriniferous tube. From this tuft a small vein arises which subdivides into a plexus, which eventually pours its contents into the emulgent vein. The course of the blood in the kidney therefore is as follows: before it can reach the renal vein it circulates through the Malpighian tuft, and venous or "portal" plexus; the one lying within the other without the tube. It follows, therefore, that if an accumulation takes places in the tube, the venous plexus is pressed upon, and congestion takes place in the Malpighian tuft as a natural consequence. It depends upon the degree of this congestion whether the serous part of the blood only, or the red particles also pass into the tube, in the latter case from rupture of the delicate vessels of the tuft.

[After the description of the anatomy of the kidney of which the above is a condensed account, the lecturer proceeds to inquire into the course of the renal congestion, as it occurs in the four classes of cases which form the basis of his lecture. And, first, in scarlatina. In this case, the congestion is attributed to the effect of the morbid poison, which excites irritation in the organ. In the second case, that of acute dropsy after cold, the congestion is produced by the suspension of the secretion of the skin. In the third case, it was apparently due to the effect of disease in the heart. In the fourth case the congestion was due to a peculiar lesion of the kidney itself, which, as it forms the principal variety of dropsy with albuminous urine, we shall describe nearly in the words of the lecturer. The symptoms of this lesion are grouped by him into three stages:]

"The first stage is remarkable for the absence of any symptom distinctly referable to the kidney. That organ, indeed, can hardly be said to be diseased, although a morbid change is commencing in it. The general health of the patient is disturbed; his assimilation, both primary and secondary, is defective; the blood suffers in some of its staminal principles, but especially in its colouring matter. There are frequent dyspeptic attacks. If the urine be examined in this stage, it will be found to contain fat, and particles of epithelium loaded with fat.

"The symptoms in this stage are such as not to attract the particular notice of the patient or his friends; and even if he did take medical advice, there is no sign which would certainly indicate the incipient stage of the disease, unless the urine be examined, and be found to contain fatty epithelium.

"The serious nature of the malady is, therefore, constantly overlooked in this stage both by the patient and physician; nor does the real state of the patient show itself until, in the second stage, the urine becomes albuminous.

"On this account the second stage is that which is ordinarily described as the *first*.

"The attention of the patient is drawn to his condition, and medical aid is sought, in consequence of all or some of the following symptoms presenting themselves: pain in the loins; nausea or vomiting; disturbed digestion; pallid or pasty countenance; some œdema of the legs or face,

or both. Sometimes hepatic symptoms are present, sometimes cardiac micturition, especially at night, is very frequent; (this is a remarkably common symptom.) The urine is albuminous; either simply so, or other elements of the blood are found in it—fibrinous casts of the uriniferous tubes or red particles of blood. It may contain a large quantity of lithates; and, as has been ascertained by F. Simon, fat; or, as Dr. Johnson finds, fatty epithelial cells.

"Patients in whom the disease has advanced to this stage, are, when exposed to cold, rendered much worse, and the progress of the malady is hastened by the suppressed perspiration, and the consequent increase of renal congestion. Indeed, the disease may have been silently creeping on, without any marked symptoms, until a check to the perspiration, giving rise to congestion, as it would do in a healthy kidney, causes so rapid a development of the dropsy and other symptoms, as to give to the disease an acute character, and to lead to its being attributed to inflammation.

"In the third stage the dropsy becomes general. There is always anasarca, and sometimes ascites; the latter usually depending on a more or less obstructed state of the liver. The urinary secretion is defective; more or less albumen is to be found. The urea, instead of being removed from the system, is retained in the blood, and the result of this is epilepsy and fatal coma.

"Now, what is the condition of the kidneys in these cases?

"1. *Both* kidneys are found in a diseased state. It seldom or never happens that the disease is limited to one kidney.

"2. We meet with irregular vascular congestion; the vessels are full at some parts of the organ and empty at others, and this gives rise to a mottled appearance on the surface of the kidney.

"3. A deposit of a new matter is found either in or between the tubes of the kidney; this deposit has hitherto been called *granular*.

"4. As the disease advances the kidneys, which were at first enlarged, shrink; their cortical or external portion becoming wasted here and there, leaving depressions on the surface of the organ corresponding to the wasted portion, and thus a tuberculated aspect is given to the kidney. The blood-vessels are obliterated in many situations, and it is impossible to inject such kidneys.

"Such, then, is the coarse anatomy of this disease, as has been clearly made out by numerous observers. The following questions, however, naturally suggest themselves, and must be answered before we can definitely decide upon the pathology of the disease.

"What is the nature of the deposit? How is it produced? Where deposited, in or between the tubes? Is it a product of inflammation? Is it a new element, or is it only an increase of a natural one? Dr. Johnson has found that the healthy epithelium of the kidney contains fat, in small quantities, it is true, but sufficient to warrant its being considered as a normal constituent of the cells. It had been previously known to exist in the cells of the liver, but in larger quantity. In this disease, however, fat accumulates in the epithelium-cells in large quantity; and it is the existence of these cells which give the appearance of a granular deposit.

"Mr. Bowman had discovered that fatty liver essentially consisted in

an overloading of the epithelial cells with fat. So similar are the cells of the kidney, in this disease, to fatty liver, that if placed side by side you could not distinguish a renal from an hepatic cell. Both are filled with distinct oil-globules, the appearance of which cannot be mistaken by an experienced observer. In these cases the cells of the liver are often unduly gorged with oil, exactly as in the kidney. Fatty matter, along with other materials, is also found in the arteries, and on the valves of the heart. Phthisis, too, is frequently coexistent, and tubercles, it may be observed, contain fat as well as other elements.

"With regard to the question, 'Is the deposit situate *in* or between the tubes?' I must remark that it is very unlikely that it should select the latter situation. The tubes are placed very close together; between them there is a very small quantity of a clear hyaline substance, in which the vessels are lodged. Again, the changes of nutrition are known to take place on the free surface of the tubes, that is, in their interior; and therefore it is most likely that any changes resulting from impaired nutrition would also manifest themselves there.

"When the gorged epithelium-cells accumulate in the uriniferous tubes, the result is that they become dilated, and compress the surrounding portal plexus, the passage of blood through which is impeded, and the Malpighian tufts consequently engorged, so as to allow the serum of the blood to transude through the coats of these vessels, or even burst, and permit the passage of the red particles and fibrin. As the accumulation goes on, the portal plexus here and there becomes obliterated, and atrophy of that portion of the kidney, with deficiency of its secretion, ensues.

"It may, then be confidently asserted, that the disease consists essentially in the deposit of fat in undue quantity in the epithelial cells of the kidney; and that the term granular kidney, so generally employed, must be replaced by that of 'fatty kidney,' as we speak of fatty liver.

[The lecturer remarks further that the apparent dissimilarity in the disease as it attacks the two organs is to be explained by the greater distensibility of the liver, which prevents the same amount of compression of its vessels as takes place in the kidney. In the treatment of the disease it is remarked, that we are to look to the particular stage in which we find it. It may be cured if taken in hand before mechanical compression and its consequences have arisen, by changing the mode of life, and adopting a careful regimen, both hygienic and dietetic. In the advanced stages we can only palliate the disease by relieving congestion, promoting the flow of urine, and the action of the skin. In addition to this the lecturer, upon the authority of Dr. Johnson's researches, restricts the the use of fatty and saccharine matters. In conclusion, the following considerations are advanced:]

"1. 'Bright's disease' is one in which the existence of albumen in the urine is a concomitant but by no means an essential feature of the disease, but a result of the mechanical obstruction to the circulation, which the morbid deposit in the kidney causes. It is, as indeed Dr. Bright himself has always insisted on, only one of the diseases which gives rise to albuminous urine.

"2. As a disease of the blood, manifesting itself in faulty assimilation, both primary and secondary, and consequently allied to those diseases

(gout, rheumatism, diabetes, &c.) which have their origin in a morbid state of the blood.

"It will be for future clinical research to discover such signs of the earliest stage of the disease as will enable both physicians and patients to detect it in sufficient time to adopt the remedial measures which are so clearly indicated by its pathology.

"In conclusion, in order to save myself from being misunderstood, let me say, that although I object to the term 'albuminuria,' for reasons before given, I regard the presence of albumen in the urine as a symptom of grave import. If albumen should suddenly make its appearance in the urine, and suddenly disappear, little need be feared; but if, on the other hand, it continues steadily and unremittingly to show itself, then it must be looked upon as a symptom calculated to excite our worst fears. The presence of albumen is always indicative of partial or general congestion of the kidney. This congestion may have a cause, and that cause may be either—1, Undue attraction of blood to the organ, as from irritation; or, 2, obstruction to the circulation in the portal plexus of the kidney, causing congestion of one or more Malpighian tufts; and this latter cause may depend either on obstruction to the general venous circulation, from disease of the heart, primarily, or upon mechanical pressure of the portal plexus, by the over-distended uriniferous tubes."

[In reference to the treatment of albuminuria, Dr. Todd makes the following observations in a subsequent lecture.]

"When dropsy, with albuminous urine, arises either from the irritation of the poison of scarlatina or of retained urea in the blood, there are antiphlogistic and eliminatory modes of treatment which may be pursued with advantage. I do not mean that large quantities of blood are to be taken. Patients of this third class do not bear large depletion; and this may be asserted generally of all patients labouring under maladies which are due to a poison or morbid matter in the blood. Small topical detractions of blood are what are most advisable, and only in cases where there is considerable congestion of the kidneys. It is, however, to the eliminatory part of the treatment that I would attach most importance; keep open all the emunctories to a moderate degree, but especially the skin, by promoting the action of which you not only favour the excretion of the poison, but you relieve the kidneys.

"When the disease arises from the fourth cause, the treatment must be directed to the circumstances of the case. If a patient should apply for advice quite in the early stage, then change of air, rigid diet, and exercise may prevent the further march of the disease; but if the later stages have arrived, the treatment will be much the same as that advised for the second and third forms of dropsy. The patient is threatened with the accumulation of a poison in the blood, and the object of the practitioner should be to keep down the quantity of that deleterious agent, and keep open the channels for its removal. But in these cases you must be very careful not to deplete too much; the more you deprive the blood of its colouring matter, the more you depress its vital power, its natural actions, and the greater hold you give to any poisonous agent which may have been developed in it. You must be careful not to attribute too

much importance to an azotized diet, as a remedy in the advanced stages. There can be no doubt that in the early periods it is most useful to guard against the introduction of aliments into the system which may feed the fatty deposits or supply the blood with fat. But such a system can do little or nothing where the deposit has already taken place in large quantity; it may possibly diminish the further deposit of fat. The best general rule I can lay down on the subject of diet in the periods of that disease, is to suit the diet to the exigencies, and in some measure to the feelings and appetite of your patient, and to adapt it, as far as you can, to his power of primary assimilation."

ART. 23.—*On the Treatment of Albuminuria.* By DR. ALEXANDER WOOD.

(*Northern Journal of Medicine*, Dec. 1845.)

[The following is the concluding section of an elaborate essay which appears in several consecutive numbers of the above journal. The author considers *seriatim* the treatment of the acute and chronic varieties of the disease, and of its principal complications.]

1. *Treatment of the Acute Variety.*—The indications for treatment in this variety of the disease are—

1st, Remove the congestion of the kidneys.
2d, Restore the function of the skin.
3d, Remove the dropsical effusion.

Almost all the authors who have written on this disease are agreed as to the propriety of *bloodletting*, and assign it the highest place as a therapeutic agent. The quantity of blood to be drawn must be decided by a consideration of the strength of the patient, the intensity and period of the disease, and the appearance of the blood drawn. It is generally recommended to follow up the venesection by *local depletion*, either by cupping or leeches. I have seldom found it necessary, at least in the variety occurring secondarily to scarlatina, the one most commonly met with. Should the patient, however, complain much of pain in the region of the kidneys, there can be no doubt of the propriety of having recourse to cupping or leeches, more especially if percussion can detect engorgement of one or both kidneys.

The temperature of the patient's apartment should be elevated and kept at an equable standard, and the action of diaphoretic medicines, aided by the occasional employment of the *warm or vapour bath.*

The use of Dover's power, as a diaphoretic, is highly extolled by Professor Christison, and its operation may be aided by the occasional employment of the warm or vapour bath.

Tartar emetic is much recommended by Dr. Barlow, who, after stating that the recovery of patients treated by purgatives, diuretics, occasional bleedings, and diaphoretics, is for the most part tedious, and sometimes incomplete, and that depletion is in general not well borne, thus continues: "I was accordingly induced to seek for some other remedy, and regarding the affection to be essentially of an inflammatory character, as evinced by the increased frequency of the pulse, and the state of the blood when drawn; and considering, moreover, the probably injurious effects of

medicines, which act as direct stimulants to the kidneys, in the recent stages of this form of disease, and the importance, consequently, of promoting, if possible, the secretion from the skin, I was led to make trial of tartarized antimony, which I found fully to answer my expectations." (Guy's Hosp. Rep. vol. v, p. 168.) And again, "It (tartar emetic) is a remedy suggested by the nature of the affection, and calculated to fulfil the most obvious and important indications, namely, equalizing the circulation, subduing the inflammatory action, and restoring the functions of the skin." (Ibid. p. 178.)

I confess that the trials I have been enabled to make of this medicine, have seldom fulfilled the expectations which such statements encourage, and that I have more than once seen all the symptoms advance with alarming rapidity under the active employment of tartar emetic.

For the purpose of removing the dropsical effusion, two classes of remedies recommend themselves—diuretics and purgatives.

With regard to the employment of the first, considerable difference of opinion prevails. Diuretics, in order to act, cause determination of blood to the kidneys in this disease. These glands are already in a state of congestion, and therefore, by such remedies, that congestion must be increased.

Plausible as such reasoning may appear, I question if, in actual practice, the use of diuretics is ever really injurious; it has certainly been condemned both by Dr. Bright and Dr. Osborne; but, on the other side, we have the testimony of Dr. Christison, who "has very seldom witnessed decided diminution of the dropsy, unless where diuresis or purging was either artificially induced at the time, or arose spontaneously," and has "even repeatedly seen the albumen disappear under diuretics."

I have found great benefit from the use of nitre in this disease, which has certainly a remarkable effect in removing the uneasiness in the loins, so often complained of; its diuretic effect may be amply secured by combination with digitalis and cream of tartar. To secure the full benefit of this remedy, however, it must be given in very large doses, which, if the salt be largely diluted, may very safely be done.

In some cases I have observed very copious perspirations to accompany its employment, and it is singular that in these it seemed the least beneficial. Given in these large doses, it has a marked effect in lowering the pulse, without at the same time affecting the tone of the system so much as tartar emetic. Where it induces vomiting or purging, the addition of a few drops of laudanum to each dose will check these troublesome symptoms. It seems speedily to enter the urine, and very soon after it has been swallowed, it may be detected in that secretion.

There can be no doubt as to the advantage of free purgation in the acute form of the disease, and we should naturally select those purgatives which produce serous evacuations. Gamboge, elaterium, and the compound powder of jalap, are all powerful remedies of this kind.

The patient must of course be carefully preserved from cold and damp, and protected from all exposure during convalescence.

The following treatment is confidently recommended by Dr. Golding Bird:

"I may remark, that as a prophylactic remedy, the warm bath is invaluable; I scarcely recollect, even in a large experience, a case of

dropsy after scarlet fever, occurring when the warm bath was daily used, as soon as the skin began to exfoliate, and continued until a perspiring healthy surface was obtained. When anasarca has occurred, strict confinement to bed, or at least to a warm room, must be enjoined, the warm bath used twice a week, and a free action on the skin encouraged. The bowels should be kept acting by the pulvis jalapæ compositus, and the antimonii potassio-tartras, administered in doses varying from one twelfth to one eighth of a grain, four or five times in the 24 hours, according to the age and strength of the patient. A bland and nearly fluid, but moderately nutritious diet, should be enjoined.

"The plan must be continued until all anasarca has vanished, a supple and perspiring surface obtained, and urine free from albumen.

"The remedies may then be gradually left off, and more nutritious diet allowed, and the ammonio-citrate of iron administered thrice daily, in doses of three to five grains, to remove the anemiated state of the patient.

"On leaving the bedroom, a flannel waistcoat extending to the loins should be worn for some time. This treatment has been almost invariably successful in every case I have employed it; and I may remark, that I have never in these cases witnessed the extensive prostration said by some to be the almost necessary result of the employment of antimony in the disease of children." (Urinary Deposits, &c. p. 235.)

2. *Treatment of the Chronic Form.*—However simple in its indications, and usually satisfactory in its results, the treatment of the acute form may be, it is far otherwise with the chronic. In it, one chief aim must be to ward off as long as possible those complications from which the suffering and danger of the patient chiefly arises.

Should there be any evidence of febrile movement in the system, depletion may be practised as in the acute form, or if active congestion of the kidneys should exist or supervene, leeches or cupping may be applied to the loins.

The functions of the skin should be particularly attended to; it should be preserved in a perspirable condition by warm clothing, and the occasional use of diaphoretics, and the warm or vapour bath.

We do not seem to possess any remedies which have the power of altering the morbid state of the kidneys. Mercurials, from their power of subduing inflammation, and removing glandular obstructions, might appear worthy of trial, but experience has decided as to their inutility; and in this disease not only is salivation easily excited, but is also liable to become violent and unmanageable.

Dr. Bright has occasionally seen the character of the urine change, and the dropsical effusion disappear under the use of tincture of cantharides, given in doses of from four to twelve drops, in some emulsion. Dr. Wells, in his paper already referred to, narrates five cases of dropsy with coagulable urine, treated with this remedy, in doses of from thirty to sixty drops in the 24 hours. In three of these the improvement was very decided; in one the albumen disappeared from the urine; in the remaining two no benefit seemed to result from its use.

M. Monneret has since strongly recommended the same medicine. Gazette des Hôpitaux, Oct. 13, 1842.)

M. Gutbrod tried the ioduret of iron in two well-marked cases of the disease with success. (Ibid. Sept. 7, 1843.)

M. Alken has found benefit result from the employment of hydriodate of potass, and iodine ointment. (Oesterreich. Med. Wochens. Jan. 28, 1843.) M. Rayer has found no benefit to result from the external application of mercurial or iodine ointment.

Dr. Rees, following out his idea of the pathology of the disease, of which a summary has already been given, recommends the plan of treatment usually resorted to in anæmic diseases, viz. chalybeate tonics, saline purgatives, and nutritious diet, and strongly condemns depletion. (Med. Gazette, Aug. 16, 1844, p. 654.)

Dr. Copland has given equal quantities of the tincture of cantharides, and the tincture of sesqui-chloride of iron, with marked benefit in a few cases.

In the more advanced states of the disease, the same author has seen more advantage from the preparations of iron judiciously chosen and combined with other remedies, than from any other class of medicines.

3. *Treatment of the Complications.*—A. *Dropsy.*—We need scarcely recapitulate what has been already said of the means of removing this symptom. The diaphoretic plan, so strongly recommended by Dr. Osborne, is not much esteemed by Dr. Christison or Rayer, while the latter author agrees with Dr. Bright in thinking that the importance of diuretics has been overrated by the former.

Dr. Christison is disposed to place much reliance on the combined use of cream of tartar and digitalis.

From a drachm to a drachm and a half of the latter substance is given three times a day, the patient taking at the same time a pill, containing one or two grains of the powder of digitalis, or 20 drops of the tincture may be given in a little cinnamon-water. The diuretic effect of these medicines may be increased by the exhibition of a blue pill every night, until four or five have been taken. Occasionally diuresis may be established by the administration of an emetic of ipecacuanha and tartar emetic, and sometimes even by the action of a hydragogue cathartic.

Should these fail, we are recommended to have recourse to squills, infusion of broom tops, or spirit of nitric ether, or Hollands with water, or carbonate, nitrate, or acetate of potass.

Many of these are condemned by Dr. Copland, as liable to disorder the stomach, and thereby farther impair digestion and assimilation, and thus accelerate the unfavorable progress of the disease.

M. Rayer prefers the decoction of the wild horse-radish to all other diuretics.

Dr. Christison draws an admirable distinction between the mistaken employment of diuretics as a supposed cure for the disease, and their judicious use as a means of combating this particular symptom. He is not inclined to attach any value to the theoretical arguments of those who have supposed that diuretics may act injuriously; he condemns them in the early stage, because, during the state of general reaction, they do not generally excite their proper action, and the urine is restored to its healthy amount with much greater certainty by subduing the reaction; that is, by antiphlogistic treatment, and also because there is no special indication for their employment, unless when dropsy is present.

There can be no question as to the efficacy of purgatives in removing dropsical effusion; and perhaps they are the best means we possess for

the purpose, if we bear in mind the tendency to annoying diarrhœa as a complication of this disease. Little more need be added to what has been already said under the treatment of the acute disease.

Rayer has often seen a remarkable diminution, and often a total disappearance of the effusion under the use of Seidlitz or Pullna water. He also recommends cream of tartar, in half ounce doses. Dr. Christison thinks favorably of gamboge, in doses of five, seven, or rarely nine grains, given once every two days. To prevent it griping, he recommends its minute division to be secured by trituration with the bitartrate of potash.

When all other remedies have failed, puncture of the limbs may be resorted to; but this operation, performed in the mildest way (acupuncture), is at all times dangerous, where the vital powers are enfeebled. Dr. Christison relates two cases where it proved fatal.

B. *Head Affection.*—This very dangerous complication requires energetic treatment, bloodletting occasionally, and very active purging invariably, are demanded. Rayer recommends purgative doses of calomel, cupping over the mastoid processes, and blisters to the nape of the neck. "Diuretics, too," says Dr. Christison, "have always appeared to me of undoubted service."

C. *Affections of the Chest.*—The inflammatory affections arising in the course of this disease require the same energetic treatment as when they occur idiopathically. Pleuritis, especially, is so exceedingly apt to end in sudden and copious effusion, that its earliest commencement must be watched and met with promptitude and vigour.

D. *Affections of the Digestive Organs.*—These are often the most annoying and tedious complications which we are called on to combat, and more may generally be effected by attention to diet and regimen than by medicine.

Acidity and flatulence are usually complained of, and are to be treated by a combination of alkalies and bitters. Dr. Sims's remedy for the heartburn of pregnancy is often successful.

Where these symptoms are associated with constipation, the carbonate and sulphate of magnesia may be given in bitter infusion, with hydrocyanic acid. Or lime water and infusion of gentian may be prescribed in equal quantities, and the bowels solicited by gentle doses of the compound rhubarb pill.

When the violence of these symptoms are subdued, an attempt should be made to restore the tone of the stomach by the preparations of iron, or zinc, with or without the vegetable tonics.

Where chronic vomiting is present, remedies of the same kind, with or without opiates, will sometimes prove successful.

Creosote is strongly recommended by Dr. Christison, who administers it twice, thrice, or oftener, in the course of 24 hours, dissolved in an ounce of some aromatic water. The taste is, however, so repugnant to some, that I have preferred prescribing it in the form of a pill; one drop of creosote, two grains of rhubarb, and one grain of extract of gentian, readily form a convenient pill.

Opium is also sometimes of service, especially the sedative solution. One case, which had resisted all other treatment, yielded to the use of a pill containing half a grain of nitrate of silver, and the same quantity of extract of opium.

The operation of all these remedies will be much aided by the application of sinapisms, turpentine epithems, or a cantharides blister externally; in the latter case, the blistered surface may be sprinkled with the muriate of morphia.

Diarrhœa may be checked by chalk, astringents, and opiates; in severe cases the acetate of lead, with opium, may be given. The other complications are to be treated merely as if they occurred unassociated with kidney disease.

Art. 24.—*On Dropsy after Scarlet Fever:*—Dr. O'Ferral observes that the nature of this form of dropsy is but little elucidated by morbid anatomy, because, from its slight fatality, we have seldom an opportunity of seeing its post-mortem appearances in the early stage. His object in the present communication is not so much to enter into the general medical history of the disease, as to point out some of the conditions with which it may be associated, and in which ordinary remedies are found to be unavailing. He more particularly alludes to that state of the patient which sometimes persists after the dropsy, and more urgent symptoms have been removed, but which leave the patient as far as ever from a return to health. The symptoms indicating this state are, the appearance of albumen in the urine and a gradually increasing pallor of the skin.

"These symptoms," he remarks, "are evidence that the patient is falling into an anæmic state. The phenomena of anæmia are quickly superadded, and, if sought for, will be found. The blanched face will be accompanied by a similar condition of the velum pendulum palati, and a bruit will be heard above the clavicle. The appearance of the urine has generally indicated a mixture more or less considerable of the colouring matters of the blood. If nitric acid be added, the albuminous precipitate will carry this colouring matter to the bottom of the vessel.

Dr. O'Ferral considers that this condition depends upon a passive congestion of the kidneys succeeding to a more active state, and suggests a line of treatment in accordance with this view. His endeavours are directed—1st, to the arrest of the insidious drain upon the system, and, 2d, to the repair of the anæmic condition upon the system. The first indication, he states, is best fulfilled by the acetate of lead, two or three grains of which are given three times a day, with acetic acid and distilled water. The second indication is met by some preparation of iron, the best of which is the Tinct. terri. sesquichloride.

As a result of his experience in dropsy after scarlatina, Dr. O'Ferral advances the following propositions:

1. That the albuminuria of scarlatina may be regarded as connected with active hyperœmia of the kidney, for which some modification of antiphlogistic treatment is in the early stage required.

2. That the early symptoms having been subdued, a passive congestion of the kidney may remain, maintaining an albuminous or serous hemorrhage, and finally producing the anæmic state.

3. That the former condition may be occasionally controlled by the acetate of lead, and the latter then effectually removed by the usual chalybeate treatment.

*Dublin Hospital Gazette*, Jan. 1, 1846.

## SECTION VII. THERAPEUTICS.

ART. 25.—*On the Therapeutic Influence of Warm Moist Air in the Treatment of Inflammation of the Air-passages.* By Dr. GOLDING BIRD.

(*Lancet*, Jan. 10 and 17, 1846.)

[In our last Report (p. 217) we briefly alluded to the contents of the present communication, expressing at the same time our conviction, from repeated experience, of the great advantage to be derived from the practice herein recommended in pulmonary affections in general, but particularly in the acute pulmonary inflammations of children. The following remarks will exhibit the views of the author more in detail. He observes:]

"Were I to point out one class of diseases more distressing than another, I would sketch a case of pneumonia or capillary bronchitis, affecting a part of both lungs, and occurring in a child barely emerging from the influence of the poison of measles or whooping-cough. The little patient, weak from previous disease, tosses restlessly from side to side, with its head thrown back over the pillow, to straighten the trachea, snatching short and imperfect slumbers, or rather moments of stupor, only to awaken to fresh distress; the livid hue of the fingers and toes, the dusky face, the parched lips and panting nostrils, the lustrous prominent eye, present a graphic picture of impending suffocation; whilst the hurried respiration, and tossing of the arms above the head, show the efforts made by the child to facilitate the distension of the obstructed lung. If pneumonia alone be present, it must be recollected that all these symptoms may exist without a particle of cough; the most severe cases of the kind which I have met with have been absolutely free from it, and consequently mistaken for simple fever. It is in this stage that the symptom first noticed by Dr. Addison becomes so valuable in drawing attention to the state of the chest; I mean the glowing, pungent heat, the *calor mordax*, so rarely met with in other affections. It must never, moreover, be forgotten, that whilst in the adult pneumonia is frequently limited to one lung, in children it usually affects both. The prominent symptoms of the most dreaded variety, or suffocative pneumonia, are diminished oxygenation of the blood, and depressed state of the cerebral functions. The little patients are often affected with great somnolence, with pale and livid complexion, and cold extremities. The respiration is often performed entirely by the abdominal muscles, and the action of the diaphragm is violent. The distress becomes greater if capillary bronchitis be added; for here, in addition to the consolidation of the lung, the tubes are obstructed by the congested state of the lining membrane, and the secretion of viscid mucus."

[In the treatment of these cases, Dr. Bird justly remarks that our ordinary therapeutic resources are too often exerted in vain, and he therefore recommends the means now to be mentioned as a most energetic remedial agent. He says:]

"In cases of this kind, I would urge the practitioner not to consider that he has done his best until he has placed the child in an atmosphere, the temperature and moisture of which shall appeal to the skin, and

relieve the inflamed bronchial tissue. The mode in which I am accustomed to effect this is as follows :—Selecting, if possible, a bedroom free from draughts of air, the windows are carefully closed, and the crevices pasted over with strips of paper. A blanket should also be suspended outside of the door, to prevent the access of cold air during the ingress and egress of the attendants, a large fire being lighted in the grate. A thermometer should be suspended over the patient's bed, and carefully watched, so that a temperature of from 70° to 78° may be constantly maintained. A large kettle is then placed upon the hob and kept boiling, so that a current of steam may pass continuously into the room.

"Let us suppose a child, the subject of capillary bronchitis or pneumonia, be exposed to the above influences, and supplied freely with diluents, and inquire what will be the probable results of the treatment. The first thing observed will be a slight diminution in the frequency of the respirations, which become less panting. In a short time the surface of the body, but especially the extremities, become warmer, or if they were previously pungently hot, they become moist, and in both cases a free perspiration bursts out. This would not occur in warm dry air. The moist warm air may be said therefore to produce three definite and direct results. First, by increasiug the determination of the blood towards the periphery of the body, it diminishes the congestion of the central organs, and consequently of the inflamed viscus. Secondly, the inhalation of moist warm air must, of nccessity, act as a soothing application to the inflamed tissues, as is evidenced by the diminution of the previously violent cough. Thirdly, the excitement of free perspiration, by which the skin performs its important functions with energy, compensating for, and lightening the duties of, the inflamed lung."

[Dr. Bird states that he has had frequent opportunities of testing the above practice in inflammatory croup, suffocative pneumonia, capillary bronchitis, and in whooping-cough, and that, were he limited to any one plan of treating pneumonia in a child to the exclusion of others, he should prefer the one in question. He alludes, in conclusion, to the great importance of having a moist warm temperature in cases of tracheotomy, as in children bronchitis is often excited by the direct passage of cold air to the lungs through the canula.]

Art. 26.—*On the Therapeutic application of Magnetic-Electricity.* Dr. Neligan has furnished a short communication to the 'Monthly Journal of Medical Science,' in which he reviews the powers of the above agent in various forms of paralysis. The instrument employed by him consists of a small battery, in connexion with a frame, on which is fixed an upright straight magnet surrounded with a bundle of iron wires, round which are coiled some thousand yards of insulated large and small copper wire, divided into seven different portions, each of which terminates separately in a small brass knob, brought up through the bottom of the frame. The shocks are produced by the continuity of the stream of electricity being broken, by the alternate attraction and repulsion by the magnet, of a piece of soft iron, which is kept in contact with a platinized screw by means of a watch-spring.

The form of paralysis in which the author has found magnetic elec-

tricity most efficacious, is that in which a single muscle, or set of muscles, is paralysed by a local cause, as in the paralysis of the extensors of the fore-arm in painters. Also in paralysis of a single muscle, from draught or pressure on the nerve supplying the muscle. No benefit has followed the application of the remedy in paraplegia or hemiplegia, whence the author concludes that it is applicable only to local and not general paralysis.

Three cases are appended which illustrate different forms of paralysis. The first is a case of wry-neck, depending upon paralysis of the right sterno-mastoid muscle. The second is a case of the painter's "dropped" hand. The third is paralysis of the deltoid muscle. In all, the cure was rapid and complete.

*Edinburgh Monthly Journal*, April, 1846.

ART. 27.—*Modus Operandi of Opium in the Treatment of Hemorrhage.* By Dr. W. GRIFFIN.

[In a work replete with sound practical observations,* the author makes the following remarks respecting the well-ascertained efficacy of free doses of opium during the continuance of hemorrhage, and in the exhaustion which is its consequence:]

"Of all the wonderful influences exerted by opium, that by which it sustains the powers of life when sinking from hemorrhage, and arrests the flow of blood, is the most extraordinary. When after severe uterine hemorrhage the countenance is sunk, the eye glassy and hollow, the lips blanched, the skin cold, and the whole person corpse-like, when the pulse is almost gone at the wrist, when every beat of the heart is scarcely perceptible, and stimulants, even brandy or rectified spirits, are either vomited or uninfluential, there remains yet one remedy capable of restoring the patient to life, and that is opium. I believe its power of saving life under these circumstances depends principally on its specific property of producing congestion in the brain. That amount of congestion by which it occasions apoplexy, when given in large doses to persons in health, seems only sufficient to sustain the necessary tension of the cerebral vessels in those who are dying from hemorrhage. Persons die in cases of hemorrhage, not so much from mere debility of the heart's action, as from the loss of nervous powers in the brain consequent to it. The opium in such cases not only stimulates the heart's action, but restores a sufficient degree of tension to the vessels of the brain to prevent faintness; and, by the judicious repetition of the remedy, life is preserved on the very borders of death. There are no cases in which opium can be given so freely and so fearlessly as in these. When the danger is imminent, five grains may be given at the first dose, and two or three every hour or half hour afterwards, until the pulse becomes distinct, the breathing easier, and the tossing about in the bed is allayed. It is hardly necessary to observe, that in such cases, in conjunction with the use of opium, the administration of warm wine or brandy, with heat to the extremities, are highly useful, if not essential." (p. 201.)

* Medical and Physiological Problems, 1845.

ART. 28.—*Formulæ for the removal of Dropsical Accumulations.*—Dr. Chapman, of Philadelphia, strongly advocates the following prescriptions in the treatment of dropsy:

1. As diuretics:

℞. Potass. Nitratis, ℥iss.
Aquæ, O iij. M.
℞. Tinct. Thebaieæ, gtts. x.
Sp. Æth. Nitriei, ʒ ij.
Vin. Ant. Potass. Tart. gtts. xl.
Aquæ, ℥ ij. M.

2. As catharties:

℞. Potass. Bitrart. ʒss.
Pulv. Jalap. grs. v—xv.
Ol. Carui, gtts. ij vel iij. M. ft. Pulv.

This is repeated so as to keep up a continual discharge from the bowels.

℞. Cambog. grs. iv.
Elaterii, gr. ss.
Sp. Nitr. duleis, ʒ ij.
Aqua, ℥ iv. M.
Coch. magnum unum secunda quaque hora.

*British and Foreign Medical Review*, April 1846, p. 370.

ART. 29.—*Rules for the Administration of Arsenic in the Treatment of Skin Diseases.*—Mr. Hunt remarks that arsenic is seldom rightly administered, and therefore often fails. The following rules for its safe and effectual exhibition will be found exceedingly valuable in practice:

1. The use of arsenic is contraindicated where there is a feverish state of the general system, a quick pulse, hot skin, &c.

2. It should never be given on an empty stomach.

3. It should never be given in increasing doses. This is a fatal and almost universal mistake.

4. The largest dose ever required is five minims of Fowler's solution three times a day.

5. This dose, if mixed with the food, will not irritate the stomach or bowels, but will, in the course of a few days or weeks, produce an itching or smarting in the conjunctiva. This membrane will appear slightly inflamed, and the lower eyelid will soon become a little puffed or swollen. The cutaneous disease will now begin to decline, and the dose must be reduced to four minims.

6. If the conjunctiva continues much inflamed, the dose must be further reduced, but the conjunctiva should be kept tender throughout the whole course.

7. If the skin becomes more inflamed, the course must not be interrupted, but a few leeches must be applied to the margin of the diseased portions, or an occasional aperient exhibited.

8. The arsenical course must be continued for as many months after the final disappearance of the eruption as it had existed years before. This will prove a security against a relapse.

9. The medicine should be procured from Apothecaries' Hall. It is very commonly adulterated by druggists.

10. Cutaneous disorders treated in this way seldom return, and never severely; nor is there any danger of metastasis.

*Prov. Med. and Surg. Journal*, April 1, 1846.

# PART II.—SURGERY.

## SECT. I. SYMPTOMATOLOGY AND DIAGNOSIS OF SURGICAL DISEASES.

### Art. 30.—*On the Discharge of a Serous Fluid from the Ear after Fractures of the Petrous Portion of the Temporal Bone.*

By M. Chaissaignac and Dr. A. Robert.

(*Archives Générales*, Nov. 1845, p. 322, and Dec. 1845, p. 389.)

[Dr. Laugier has abandoned his original opinion, that the fluid is the serosity of the effused blood pressed through a fissure in the bone (Abstract, vol. ii, Art. 52); and after remarking that many theories have been propounded to account for this symptom, M. Chaissaignac states, that not one of these has proved satisfactory: he then proceeds to describe the close approximation of the venous sinuses to the petrous bone within the skull, and other anatomical considerations, as the intricate adhesions of the membranes in the neighbourhood of the sinuses, and the thinness of the dura mater between the venous sinuses and the bone, the object of M. Chaissaignac's communication being to show the probability of a rupture, or a minute opening, in one of the venous sinuses occurring at the same time with the fracture of the bone.]

In one case, a patient of M. Roux's, after a fracture of the os petrosum, the non-adherent parietes of the lateral sinus having been slit up, an opening was found the size of a pin's head in that part of the sinus in contact with the fracture. If the fluid flows directly from the blood, the minuteness of the opening is sufficient to account for its transparency, just as certain vessels of the conjunctiva are too small to admit the red corpuscles; and the judicious remark made by M. Laugier, that the transparent auricular flux is invariably associated with fissures rather than fractures of the bone with displacement, is in favour of this explanation. When the fractured sides are separated, a sanguineous, and not a serous flux is observed. As to the objection that the chemical composition of the auricular fluid differs from that of the serosity of the blood, particularly in the absence of, or in containing less chloride of sodium, M. Chaissaignac attaches little importance to it, since nothing is more variable than the quantity of this salt in the blood at different ages and in different individuals. In particular, chloride of sodium occurs naturally in small quantity in young subjects, all the observations hitherto made on this flux

from the ear having been in such subjects; besides which, we cannot be aware of the changes in composition that a fluid distilled from the blood may undergo in its passage through the tissues, and through a narrow and sinous fissure, before it reaches the external ear. The objection that such openings in a vessel would be closed in the ordinary way by the formation of a clot is met by special anatomical and physiological considerations. In a case where there was a flux from the nasal cavities, similar to the auricular flux, M. Chaissaignac showed distinctly that the fracture crossed the left cavernous sulcus, with which the cavernous sinus is so intimately connected.

Dr. A. Robert's is a much more important paper, and appears to us to afford a much more probable solution of the question. The flux of an aqueous fluid, instead of depending exclusively upon fractures of the petrous bone, is a more general phenomenon connected with the existence of certain fractures at the base of the cranium, the anatomical conditions of which can be determined with precision. The flux proceeding from the external auditory canal after injuries of the head, has always been observed in infants or young subjects; thus of seven cases, two were 4 years old, one 12 years, one 18, one 20, one 23, and the seventh was a young man. In young subjects, the middle of the os petrosum is the most feeble, and would be most readily fractured, and Dr. Robert considers it sufficiently established, that the abundant aqueous flux which takes place from the external ear in consequence of blows on the cranium, indicates the existence of a fracture, dividing transversely the middle of the petrous portion, involving the internal auditory canal, the labyrinth, and the internal wall of the cavity of the tympanum, with a rupture of the membrane of the tympanum.

It is an objection to the opinion originally held by Dr. Laugier, that the fluid in question differs chemically from the serum of the blood, since it contains no albumen, and double the proportion of chloride of sodium, and therefore cannot proceed directly from the serosity of the blood. Again, it certainly cannot proceed from blood effused within the cranium, since in no case has a solid residue proportional to the fluid effused been found after death. M. Chaissaignac's opinion, that the fluid is derived from the blood, filtered, as it were, through a rupture of the venous sinus, is not established by sufficient proof. And again, the chemical properties of the liquid, as before stated, will not prevent it being referred directly to the serosity of the blood. Mr. Guthrie has stated his belief, that the source of this fluid is the cavity of the arachnoid membrane, but he has given no fact or proof in support of this opinion. It has also been referred—equally without proof—to the cerebro-spinal fluid; and lastly, M. Bodinier has performed experiments to show that the fluid proceeds by exosmose through the membranes of the brain, but on repeating the experiments similar results were not obtained. M. Bérard observed, that the fracture traversing the internal auditory canal must rupture the prolongation of the membranes of the brain in the interior of this canal, and that a passage might then be opened for the cerebro-spinal fluid.

Dr. Robert was thus led to examine, with great care, the state of the meninges in this locality, and he found that they were manifestly ruptured, the edges of the ruptured membrane being swelled and ecchymosed.

With this anatomical fact, Dr. Robert connects that of the chemical nature of the fluid, which differs only in a few unimportant particulars from the cerebro-spinal fluid, as determined by Majendie and Lassaigne. Added to this, Dr. Robert made an experiment on the dead body, in which he produced the anatomical lesion in question, fracturing the petrous bone from within vertically, upon which a certain quantity of cerebro-spinal fluid was effused, being very abundant on inclining the head and trunk downwards. The artificial fracture was afterwards found to penetrate into the internal auditory canal, and was complicated with a rupture of the membranes in the interior of this canal; and from this experiment it may be inferred that there can no longer remain any doubt that the flux during life consists of the cerebro-spinal fluid, proceeding through a rupture of that portion of the cerebral membranes which lines the base of the internal auditory canal.

M. Robert's account of the circumstance is this:—The dura mater becomes very thin where it lines the internal auditory canal, which it does closely, and is continued in the form of a sheath, over the facial, and the two branches of the auditory nerves, as they leave the cranium. The arachnoid accompanies the dura mater to the bottom of the internal auditory canal, and is then reflected upon the nerves of the seventh pair without adhering to them, as at the base of the brain itself. But the seventh pair does not nearly fill the canal, the space comprised between them and its walls is filled with cerebro-spinal fluid, which is known to be very abundant at the inferior and middle portions of the brain. It is evident then, that if the dura mater and the two contiguous folds of the arachnoid are ruptured at the base of the internal auditory canal, the cerebro-spinal fluid on the outside of the arachnoid, between it and the nerves, must escape freely by this rupture. We may conceive even that a rupture of the dura mater alone would be sufficient for the same effect, if this took place at the very bottom of the canal, at the point where the arachnoid abandons the surface of the dura mater to fold upon itself, and form the double serous sheath placed round the seventh pair, and the cerebro-spinal fluid immediately surrounding this. Once finding its way through the cerebral membranes, the liquid would easily get beyond the fine osseous plate which separates the bottom of the internal auditory canal from the vestibule, if this plate is fractured; from thence it would traverse the labyrinth, and reach the cavity of the tympanum, either through the fissure of the petrous portion, or through the fenestrum ovale itself, which is found open and free, in consequence of the displacement which the stapes has undergone. Lastly, from the cavity of the middle ear the liquid would flow freely outwards by the external auditory canal, through a rupture which always occurs in this case in the tympanum.

It appears to be a remarkable fact, that in these accidents the hearing is preserved on the side affected, in spite of the rupture of the tympanum, the fracture of the stapes, and its separation from the fenestra ovalis, and in spite of the fracture of the walls of the vestibule. If this fact should be confirmed, it would modify our opinions as to the functions of various parts of the auditory apparatus.

The effusion of this fluid may be the only symptom which indicates a fracture at the base of the cranium, and is thus most important in reference to prognosis. At present we have not one case before us which did not terminate fatally.

M. Robert gives a case in which, after a violent concussion of the head, an aqueous liquid flowed through the right nostril until the death of the patient, and even afterwards. The quantity was very considerable, and in all its characters it was analogous to the fluid which has been observed to flow from the ear after injuries of the head, which tends to prove that it had the same origin, and was neither more nor less than the cerebro-spinal fluid. The post-mortem examination fully confirmed this view, and leaves no room for any other interpretation. In fact—1. The membranes were ruptured above the sella-turcica, and this rupture being situated where the cerebro-spinal fluid collects in large quantities, might easily give egress to that fluid. 2. Opposite the ruptured portion of the membranes there was a solution of continuity in the base of the cranium, penetrating the sphenoidal sinuses, principally that on the right side. The very thin mucous membrane which covers this sinus was ruptured, but a very fine plate of bone only separated in this situation the cavity of the cranium from that of the sinus; it is evident that the cerebro-spinal liquid might very easily escape this way, and penetrate the sphenoidal sinus on the right side, which opens into the corresponding superior meatus of the nasal fossæ, and hence through the nostril. If M. Robert's views should be confirmed, as remarked by himself, the history of fractures of the cranium will be enriched with a new symptom, and with a valuable element in diagnostics; and physiology itself will find in it useful data, by which the use of the cerebro-spinal fluid may be determined.

ART. 31.—*The Diagnosis of Lateral Curvature of the Spine, particularly in its Incipient Stage.* By JAMES COLES, Esq., M.R.C.S.*

The attention is first attracted by an appearance of inequality, either in the shoulder or hips, which consists not, at this time, of the one shoulder being elevated above the other, but of its appearing to be thickened and larger; and in girls more advanced in years this unequal appearance is also conspicuous in the breast of one side, generally the right.

It sometimes happens that an irregular and unsteady mode of walking first excites attention; the ankle on one side seems weaker, and an appearance of limping in the carriage is observable. When the patient runs or walks fast, the limb of the affected side in being brought forward is thrown outwards, and swung in advance, as it were, with a jerking effort not easily described, but readily detected by a person previously acquainted with the symptoms. This affection of the leg is the result of inequality at the hips.

On examining the spine, and tracing the vertebral column with ink from the neck to the loins, the distance of the two shoulder-blades from the line so marked will be found unequal; the right, towards which the column in the majority of cases curves, being nearer, by from one eighth of an inch to half an inch, than the left; and if in addition a plumb line be applied to the spine, this inequality will be found to arise from the curvature of the column, and not, as was previously supposed, from a growing out of the shoulder. At this early period the only other conspicuous appearance in the back will be a slight sinking in of the right

* Essay on Spinal Affections. 1845.

loin, and a proportionate fulness of the opposite side; and in cases where the peculiarity in walking above described exists, a slight elevation of the hip on the left side.

The diagnosis will be much assisted if the patient be made to bend her body well forwards, the arms being crossed upon the chest until the spine is brought into a considerable curve, and the skin becomes tightly drawn over the prominent spinous processes, like that over the knuckles of the closed fist; by this attitude the column will be made straight longitudinally, even if a considerable curve exists when the body is erect. Each of the projecting points throughout the column should now be marked with ink, or charcoal, indigo, or any other convenient colouring matter, and the patient again directed to stand upright; if any curve exists it will now be apparent by the marks, which still form a straight line down the back, not being found in their places over each of the spinous processes of the vertebræ, and this will be still more minutely traceable in difficult cases, by having recourse to a piece of small twine or thread, and placing one end of it on the prominent spinous process at the bottom of the neck, and the other on the lowest vertebræ of the loins; this, by connecting the perpendicular line of spots made by the ink, will show the minutest deviation, even of one single bone, in the vertebral column.

In many cases the general health of the patient is affected from the earliest period. The child grows thin and pale, a general languor and debility is observable, with great disinclination for active exertion. Under these circumstances, which are often accompanied by rapid growth of the body, a well marked symptom of the nature of the disorder is the propensity of the child to continual change of attitude, now leaning on a chair or table, resting on one leg, sitting awry, stooping forward, and becoming round-shouldered; so early do these symptoms often present themselves, even before the spinal column can be observed to bend, as to have induced a belief that such habits are the cause of the curvature which afterwards becomes apparent. The frequent change of attitude is resorted to for the purpose of relieving the pressure of the superincumbent weight upon the spine, which induces a feeling of general fatigue. Resting on one leg is for the same purpose.

In whatever form lateral curvature makes its approach, the effect of the first curve, whether it occurs at the upper or lower part of the spinal column, will be to produce a second, in an opposite direction, above or below it, as the case may be; this is occasioned by the disturbance of the centre of gravity, resulting from the loss of the perpendicular line which the healthy spine presents. These two curves will, therefore, now resemble in form the italic *s*, the projection of the shoulder and hip will be progressively increased, the whole of the convex side of the curves, above and below, will assume a rounded and barrel shape, while their opposite or concave sides will be sunk and contracted; thus, assuming that the curvature is towards the right shoulder, as is most frequently the case, that shoulder-blade will be projecting and elevated, and the ribs rounded and barrel-shaped, and the opposite side will be diminished and compressed, whilst in the loins the reverse will be the case, the right side sinking in and appearing shrunk up, and the left round, full, and projecting.

If the case has been neglected or mismanaged, the spine then begins to assume not only a curved, but also a rotated form, having in fact become twisted upon its axis; the attachments of the ribs on the right side are thus carried outwards and backwards; the ribs themselves are compressed and bent, and thus made to form a projecting ridge posteriorly, sometimes of considerable magnitude, and adding greatly to the appearance of deformity; on the opposite side, the attachments of the ribs to the spine are carried inwards and towards the right, the whole of the left side is consequently depressed and flattened; and the shoulder-blade accompanying the ribs is drawn below the level of its fellow, and is more or less displaced. As the disease progresses and the debility increases, the distorted column begins to project backwards as well as laterally, bringing with it the right shoulder and the projecting ridge of ribs, the body tilts over to the left side, which becomes so sunken, shrivelled, and depressed, that the ribs are not unfrequently found to rest upon the ascending hip, and the deformity becomes complete.

---

## SECT. II. THE NATURE AND CAUSES OF SURGICAL DISEASES.

### ART. 32.—*Neuralgia from a bony Tumour in a Nerve.*

By W. H. T. COLBORNE, Dresser in University College Hospital.

(*The Provincial Medical and Surgical Journal*, Oct. 29, 1845.)

Elizabeth Moore, aged 32, of very healthy appearance, of sanguine temperament, and never before having suffered from any neuralgic pain, or from hysteria, in the winter of 1835 first experienced a twitching sensation in the foot, whenever the ham was struck, which during the next two years gradually became more marked, and left a slight tingling sensation for a few seconds after the twitching. In the winter of 1842 this twitching sensation first came on independently of external violence, and recurred every night. It soon increased to an acute pain, remained for a longer period, and was confined to the inner and under parts of the sole of the foot. From August till October, 1842, it lasted on an average three quarters of an hour, the paroxysms still increasing in duration and violence. From October to December, they often lasted two hours; she was then treated for a nervous complaint, and the pain entirely ceased for three weeks; it returned however, the paroxysms recurring regularly every night, and an uneasy sensation, compared with that of a decayed tooth, remained during the day.

In January, 1843, she was married, and a few months afterwards she stated the paroxysms occurred regularly about 2 a. m. still increasing in violence and duration. She was confined in October; and during labour, and for three days afterwards, was entirely free from pain, but had no milk. She was afterwards treated by blistering over the sacrum and in the ham, and took steel medicines, without benefit. Arsenic and opium relieved her entirely from pain for a month, but the pain returned gradually, its regular periodicity being broken. It now came on in the evening, and lasted about four hours, and a second fit occasionally recurred early in

the morning. Eight months ago the paroxysms had merged into one continual nocturnal and diurnal pain. In June last, she was again confined, was again free from pain during labour and for six hours afterwards, and again she had no milk. On the recurrence of pain she was narcotized with opium for five days, but after this the pain returned with increased intensity.

On admission into the hospital, under Mr. Quain, a tumour about the size of a small walnut was discovered near the inner hamstring, two or three inches above the level of the patella, in the popliteal space. Manipulation produced no local uneasiness, but intense pain in the foot. She has been aware of the existence of the tumour about three years. The pain of late extended over the whole under part of the foot except the toes, and included the heel; it was never accompanied by spasms.

A longitudinal incision was made over the seat of the disease, and on dividing the deep fascia, a hard gritty tumour was seen in the internal popliteal nerve; the nervous fibres passing over it in bands of unequal size, and thus inclosing it. It was readily turned out of its cellular cyst. The pain in the foot ceased shortly after the operation, some degree of numbness remaining in the limb. Considerable fever occurred; there were slight paroxysms of pain two days after the operation, but the numbness was diminished. A slight attack of erysipelas came on five days later, along the course of the posterior tibial nerve; but she soon improved, the wound healed, and the pain in the foot entirely disappeared.

The tumour was furrowed in one or two parts on the surface where the bands of nervous fibres passed over it; it weighed 228 grains, and was composed of about two thirds of phosphate and carbonate of lime, a trace of phosphate of iron, and a trace of sulphate of lime, with animal matter.

### Art. 33.—*Spontaneous Gangrene.* By Dr. Angelo Binaghi.

(*New Orleans Medical Journal*, and *Dublin Medical Press*, Nov. 12, 1845.)

Spontaneous gangrene, which in Mexico is the cause of as many amputations as all the other internal causes of disease united, appears to have chosen that capital for its residence, as ophthalmia has chosen Egypt, the cholera the East Indies, the pelagra Lombardy, or the plica Poland, &c.

During the space of one year (1837) Dr. Binaghi saw three or four cases, and heard of others.

The first case was in the person of Sr. Pascua. After having had both lower extremities amputated by Dr. Viletti, at different periods, and Dr. Binaghi believes the superior extremities also, the patient then entered the hospital, where he died a few months afterwards. Dr. L. Jecker made the autopsy of this man, and preserved the abdominal aorta and iliac arteries as morbid specimens. On laying open longitudinally these arteries, the following peculiarities were presented: on the free surface of the internal tunics, at unequal distances, were found a number of superficial ulcers either round or oval, with smooth borders, from one to four lines in diameter; more numerous near the bifurcations; some were of a white, others of a pale yellow colour; others resembling

aphthæ, others gray and mammillonated; others, again, covered with flocculi, which were easily detached, and resembling fibrine in structure. The capillary system of the internal coats of these arteries presented no other changes or any other degree of injection.

The second case was a poor man, aged 45, who presented symptoms of marasmus, which usually characterize the last stage of all chronic diseases. He had a gangrenous spot as large as a half dollar on the dorsum of the right foot, analogous to an ordinary eschar produced by caustic applications. The pulsations of the arteria dorsalis pedis could not be detected. The pulsations of the arteria cruralis, at the point where it emerges from beneath Poupart's ligament, were scarcely perceptible on pressure. In consultation, it was decided that amputation would be useless, because the disease had undoubtedly extended already as high as the iliacs. In a short time afterwards, the patient expired.

On examination after death, the principal arterial trunks of the diseased limb were found completely obstructed—in fact, their calibers were obliterated. The corresponding iliacs presented the same morbid alterations as those which were specified in the first case.

The third case was a man of the higher class, aged 38, and whose *embonpoint* precluded all idea of any constitutional affection; he complained of constant pain in the bottom of the left foot, corresponding with the first phalanx of the great toe; at this point the skin was callous, and presented no other signs of inflammation than the pain, which was not increased by pressure; he compared the painful sensation to that arising from corns; the temperature of the extremity was normal; the skin on this leg was rather drier than that on the other. The pulsations of the dorsal artery of the foot were visible; and when pressure was made upon it, it was found contracted, tense, and isochronous with the other arteries of the body. The crural artery of the same side was similarly affected, though less characteristic. Besides these peculiarities the organism seemed healthy. About two months posterior to this time, amputation was performed above the knee; the patient recovered, perhaps to submit at some subsequent period to another amputation. The limb was examined, and the same pathological changes were observed in the arteries of this as of the preceding limb.

The fourth was a subject, aged 32, of a robust constitution and a sanguine temperament. This man usually enjoyed good health, until about two months before Dr. Binaghi saw him. At this time he complained of a constant pain at the sole of the left foot, without being able to account for it. He presented all the symptoms of the third case, except the seat of the callosity, which corresponded with the phalanx of the third toe. Finding the disease of recent origin, and the subject otherwise in good health, Dr. Binaghi determined to try to arrest the disease by internal medication, rather than amputate, reserving this to the last chance. For this purpose general bleeding, mercurial inunction, drastic and saline cathartics, the free use of diluents, full, warm, prolonged baths of two and three hours, hot fomentations to the affected limb, and low diet, were resorted to. The patient bore this active treatment quite well; the objective symptoms gradually disappeared, and at the end of four months he was able to resume business. He was advised to restrict himself to a low and exclusively vegetable diet; to use repeated warm

baths, and from time to time to resort to some of the purgative medicines first administered; an issue was also opened below the internal condyle of the femur, on the upper and posterior part of the tibia, and recommended to be kept discharging for life. In addition to this precautionary measure, the constant use of *gum elastic* stockings was suggested.

In remarking upon the disease, Dr. Binaghi calls in question the name which it bears — spontaneous gangrene — as the post-mortem appearances show the pathology of the disease to be a lesion in the internal tunics of the arteries, causing the obliteration of the arterial tubes, and consequently the gangrene. He regards it as a lesion of nutrition, unaccompanied with inflammation.

As to the cause of the disease, from a system of reasoning by exclusion, Dr. Binaghi arrives at the following conclusions. After stating that the temperature of the city of Mexico constantly stands at from 50° to 60° (Fahren.), he goes on to say,—here, the functions of the skin, through which, in a healthy state, heterogeneous principles should be thrown out of the organism, are more or less checked or suspended, thus causing those elements, now no longer fit for the purposes of nutrition, to be retained in the system, which may be the exciting cause of the disease of the arteries. In other words, he believes that the essence of this disease consists in an abnormal nutrition of the internal tunic of the arteries, produced by a *dyscrocia*, which proceeds from an imperfection of the functions of the skin, or from any other cause capable of altering the chemico-organic conditions of the fluids, producing abnormal nutrition, which ends in the complete obliteration of the arteries, and gangrene is the result.

The primitive cause, so productive of this disease in the city of Mexico, is in his opinion the same as that which keeps the temperature of the town so low, and which also gives rise to the various maladies of the sanguineous system, particularly of the arteries, viz. the high elevation of the city above the level of the ocean. At such an elevation, the air is greatly rarefied; hence the imperfect oxygenation of the blood, from the fact that at each inspiration a less quantity of oxygen is taken into the system than under ordinary circumstances.

The atmospheric pressure, at this elevation, is comparatively very light, from which it results that the *lateral* pressure of the fluids upon the vessels must prevail over the longitudinal, and must modify the peripheric functions, or the functions of the free extremities of the capillary system, consequently the secretions must be torpid, and the principles which should be eliminated through the skin and other emunctories, be they excrementitious or decarbonising, remain in the organism and alter the *crasis* of the liquids, which gives rise to the abnormal nutrition that manifests itself in the internal tunics of the arteries.

As to treatment, he regards mercury externally applied in the form of ointment, the principal therapeutic agent. Iodine, and its preparations, the warm bath, and removal to the sea-shore, are also recommended.

*St. Louis Medical and Surgical Journal.*

## Art. 34.—*Peculiar Ulcer of the Anus. The excavated ulcer.*

By J. J. Scallan, Esq. Dublin.

(*The Dublin Journal*, Nov. 1845, p. 217.)

The symptoms which characterize this disease may be summed up in a very few words. It is ushered in by an uneasy sensation at the anus, increased on going to stool; as the disease progresses, the sufferings during the act of defecation became daily more aggravated, conveying to the patient a sensation of scalding or of a red-hot iron being introduced into the gut; on the completion of the act of defecation some relief is felt by the patient, but, after the lapse of a few minutes, the sufferings are renewed, and continue unmitigated for a length of time, varying in different cases from four to nine or ten hours when they gradually abate, and at length leave the patient at perfect ease until a renewal of the necessity for the passage of the fæces causes a return of the sufferings.

These symptoms are very nearly identical with those which belong to that form of fissure described by Dupuytren as occurring at the level of the sphincter, but one difference nevertheless exists, and serves in most cases as a point of diagnosis, viz. that in the excavated ulcer, the patient during the intervals, in most cases, suffers so slightly, as scarcely to be cognizant of any annoyance; but in fissure of the anus he is at no period at ease; suffering during intervals a sensation of much heat and tension, which gives place, when the cause for exacerbation arises, to the intolerable anguish hitherto considered the characteristic of the affection, and which is symptomatic also of the disease under consideration.

By attention to the point of difference just mentioned we shall be enabled in some instances to diagnose the disease by the symptoms alone, but in no case can we arrive at a complete diagnosis until we shall have resorted to a manual examination. On examination, we are first struck by the absence of that permanently contracted state of the orifice, which is an almost invariable accompaniment of fissure. Generally speaking, in the excavated ulcer, the orifice is as lax as in the healthy state, or, if it be in any case contracted, it is but slightly so; this allows the examination to be made with much less pain to the patient, and equally less difficulty to the surgeon, than in the case of fissure, circumstances which cannot fail to attract the attention of any one who has had experience in those diseases. The next point which attracts attention is the absence of the fissure. If the finger be now introduced sufficiently far to be on the level of the upper part of the sphincter, laid flat on the mucous membrane, and carried over its lateral and posterior parts, its extremity will sink into an ulcer rather deep, and of a size varying from half an inch to an inch in diameter; the dipping of the point of the finger, and the sensation which the rough surface of the ulcer conveys to it, indicate satisfactorily the existence and situation of the ulcer, which is confirmed by the sensations of the patient; for the words of M. Dupuytren, in describing the symptoms of fissure, are also precisely applicable to this disease, "la pression fait ressentir beaucoup de douleurs." We also find that immediately on the pressure being made on the surface of the ulcer, the finger is grasped by the contraction of the sphincter muscle. This ulcer differs in many points from those noticed by authors; for instance, its size is generally smaller, *and it is excavated*, &c. &c.

The reader will observe the great similarity between this ulcer and that described by Mr. Colles; but he will also observe points of difference sufficient to prove that they are not identical.

Mr. Scallan remarks:—If I were to reason from symptoms, I should say that they are the same disease, occupying different situations. The ulcer of Mr. Colles being situated above the sphincter, and that under description on its level, we should thus have two forms of ulcer as we have two forms of fissure, one above, and one on the level of the sphincter; but I have not sufficient experience of Mr. Colles's ulcer to say whether this explanation be borne out by observation. The treatment which this ulcer demands is identical with that so successfully practised in cases of fissure, the symptoms of which it so closely resembles, viz. division of the sphincter muscle, the bistoury cutting completely through the substance of the muscle, and making the wound and the ulcer one continuous surface, as recommended by Mr. Colles. The after treatment is sufficiently simple.

ART. 35.—*Encysted Tumour of the Labium.*—Mary Donaldson, aged 35, was admitted on the 24th of November last, under Prof. Syme. The left labium was occupied by a large tumour, which presented the characters of a hernia, in regard to consistence and the effect of pressure, which, when applied with moderate force, made the external swelling disappear. The patient stated her complaint to be a rupture, and attributed it to a fall she had suffered about four years before.

Upon careful examination Mr. S. found that the tumour extended for some distance inwards by the side of the vagina, but did not communicate with the pelvis, and therefore concluded that it was merely a cyst, with fluid or semi-fluid contents, which admitted of removal. On the 27th, having placed the patient upon her back with the knees drawn up, Mr. S. cut cautiously through the thin distended integument of the labium, and then readily detached all the projecting or external part of the bag. But when he proceeded with the dissection of the deeper part, it was found necessary to divide adhesions of considerable firmness and extent, which had been contracted with the neighbouring parts. At length the tumour was completely removed, and proved to be a cyst the size of a goose egg, containing a semi-fluid matter like thin putty. She suffered no troublesome symptom from the operation, and was dismissed on the 25th of December.

*Monthly Journal of Medical Science*, Feb. 1846, p. 83.

ART. 36.—*Hereditary Brittleness of Bones, and their repeated Fracture in Members of the same Family.* By Dr. PAULL, of Landau.

(*Untersuchungen und Erfahrungen aus dem Gebiete de Chirurgie*, and *The Dublin Hospital Gazette*, Feb. 1, 1846.)

In the commune of Offenbach there resides a family, all the members of which have already had fractures. Three of them have each had two fractures; another three, either of the arm or of the leg; one has even had as many as five fractures of one or the other extremity; and to produce these injuries no considerable violence was in general requisite. The

father and grandfather before them had fractures of the limbs. This family, moreover, is a very healthy one; there does not appear to be any scrofulous or other taint in operation. It is remarkable, that not one of them suffered a fracture before the age of eight, so that one might suppose that this particular fragility of the osseous matter was developed only towards the age of puberty. It would seem, however, that the condition of this fragility consists in some change of the chemical constituents of the bones in their relations to each other.

It has been frequently observed, that men addicted to the use of brandy often experience fractures (in consequence of a degree of brittleness induced in the bones), which require a long course of treatment to ensure their consolidation. I met with this fragility of the bones in a subject of this kind, a man 54 years of age, who hung himself three years ago at Goechlengen; the ribs, particularly, snapped like glass, and a very moderate force sufficed to fracture the long bones. But if fractures in these old drunkards are cured only very slowly, precisely the contrary is the case in the family above mentioned; for in every instance which occurs in it, the fracture is very speedily consolidated, so that generally the callus is perfectly firm at the end of three weeks. I should add, too, that when the same bone has been broken a second time, it has never occurred at the seat of the callus.

## Art. 37.—*Curable Sinuses depending upon Exfoliation of the Bones of the Pelvis.* By Professor Syme, Edinburgh.

(*The Monthly Journal of Medical Science*, Feb. 1846, p. 85.)

[The following cases are related by Professor Syme, for the purpose of assisting the practitioner in discriminating curable from incurable sinuses of the pelvis.]

John Robertson, aged 30, son of a farmer in Perthshire, was admitted on the 13th December, in apparently the most hopeless state of exhaustion, from the profuse discharge of matter through small openings at the lower part of the belly, and upper part of the thigh. He presented, in a remarkable degree, the aspect of tabes dorsalis in its advanced stage, being extremely emaciated, and having the peculiar pallor of countenance which results from long continued suppuration. His clothes were saturated with matter, and the stench attending him was more offensive than can well be imagined.

He stated that, sixteen months before, while in perfectly good health, he had been employed for three days in loading carts with sand, and afterwards felt severe pain in the thighs, chiefly on the inner side; that, in the course of two months, there gradually appeared, a little below the left groin, a swelling which, at the end of two months longer, gradually opened, and discharged a large quantity of matter, and that the other openings over the region of the bladder had been formed subsequently.

Finding that there was no difference, either real or apparent, in the length of his limbs, and that there was no sign of disease in the hip-joint or spine, it was suspected that an exfoliation at the origin of the adductors or flexors of the thigh, was the source of the discharge; and upon

inserting a probe into the opening left by the abscess, a portion of dead bone was distinctly felt. The sinus was dilated by incision upwards, sufficiently to admit a finger; and then ascertaining that the exfoliation lay in a cavity formed by very dense texture, partly by cutting with a blunt-pointed curved bistoury, partly by stretching with the finger, sufficient space was obtained to extract two pieces of dead bone, one an inch, the other an inch and a half in length, with about half of these extents in breadth. They consisted of cancellated osseous texture, and one of them appeared to have formed part of the tuberosity of the ischium. The cavity was then carefully examined, but no more dead, or even denuded bone could be discovered. The patient suffered little during the operation, and nothing after it. He noticed almost directly a diminution of the discharge, which, in the course of a few days, became so scanty as to occasion no inconvenience. His strength daily increased, and there being now merely a slight oozing from the apertures, while he feels, to use his own expression, "as well as ever," he purposes to return home in a few days. Had the distance been less, or the season more favorable, he might have done so sooner, though four weeks have not yet elapsed since the exfoliations were removed.

Alexander Paterson, aged 18, from Alloa, was admitted on the 20th of January last, suffering from stricture of the urethra. It was stated that, eight months before, he had been bruised by a very heavy piece of iron machinery, which fell upon the pelvis. Extravasation of urine and extensive sloughing of the perineum followed, with the separation of a piece of bone at the end of a month. The sore then gradually healed, but with increasing difficulty of micturition, which at length nearly ceased through the proper outlet, and was effected chiefly by an orifice in the perineum. This opening was situated on the right side, near the hip, in the centre of a large and very firm cicatrix, resulting from the loss of substance that had taken place in the first instance.

I found a very tight stricture at the bulb; but having succeeded in passing a small bougie through it, I carried on the dilatation without entering the bladder, as there was a large cavity behind the contracted part that rendered the farther progress of the instrument uncertain. Being able at length to introduce a moderate-sized bougie, I carried it on into the bladder, and in doing so encountered a hard substance, not giving the clear ring of stony matter, and which, therefore, I concluded to be a piece of bone. On the 5th of February, having passed a small grooved staff into the bladder, I made a free incision on the left side of the perineum, the sinus that opened on the right side being so long and tortuous, that a probe could not be conveyed through it to the object of removal. Inserting my finger through the dense and thickened textures, I felt a piece of bone lying in a cavity of cartilaginous firmness, and having dilated the aperture sufficiently, extracted two exfoliations, which together measured two inches in length, and one in breadth. They seemed to have formed part of the symphysis pubis.

After the operation, the patient confessed that he had suffered the greatest distress in attempting to make water, but concealed it, from fear of what might be considered necessary to afford him relief. He felt perfectly easy after the exfoliations were removed, and was dismissed on the 10th of March.

ART. 38.—*Gangrene of the Hand and Fore-arm, from occlusion of the left axillary and humeral artery.* By Professor TIEDEMANN, Heidelberg.

(*The Edinburgh Medical and Surgical Journal*, Jan. 1846. p. 116.)

A day-labourer, 56 years of age, the father of six healthy children, had enjoyed good health till the last two years. Without known cause, on the right side of the chest arose a swelling, which proceeded to suppuration, and left a fistulous opening scantily discharging purulent matter. In March, 1840, he was all at once attacked with pain in the left arm, which was at first trifling, but progressively became more violent. Some time after, the index-finger of the left hand became black, and speedily after, the other fingers. Swelling attacked the hand and extended to the fore-arm. On the 2d of June the patient requested assistance at the Surgical-clinical establishment of Tubingen. The left hand was then greatly swelled; the swelling was soft, the skin cold and insensible, and on the posterior surface were black spots and desiccations. The dirty, livid, marbled appearance extended nearly to the elbow. No symptoms of inflammatory reaction were observed. Though the shoulder was not swelled nor the skin livid, yet no pulsation could be felt in the humeral or in the axillary artery, and in their course was felt only a hard cord.

It was here thought that the gangrene might proceed from closure of the humeral artery. But there were no means of determining how far the occlusion extended towards the heart. In the appearance of the parts attacked, limitation of the gangrene was in no manner to be expected. As the soft parts of the humerus appeared still sound, it was resolved to make an attempt to set limits to the gangrene, by amputation of the humerus. Professor Rucke performed the operation, and though pain was felt, no bleeding occurred. The humeral artery was completely closed by a solid fibrinous clot; all its branches were obliterated and gave no blood, and no pulsating motion was observed in them. A simple bandage moistened with camomile infusion was applied. Musk was given internally.

On the 5th of June the wound was gangrenous; the strength of the patient rapidly sunk, and he died on the 9th of June.

On dissection, the subclavian and axillary arteries with all their branches and twigs were found completely closed by solid fibrinous coagula, which adhered closely to the inner coat of the arteries. The plug of fibrinous coagulum extended into the left subclavian artery to about one inch from its origin from the aorta. Here it terminated somewhat abruptly; yet loose patch-like shreds of coagulable lymph were attached to the inner coat of the vessel as far as the aorta. The aorta presented many hard cartilaginous spots, containing plates of bone, partly denuded of the inner serous membrane, which felt rough.

The gangrene and the pulselessness of the arm were evidently the consequences of the occlusion of the axillary and subclavian artery by solid fibrinous coagula, which had extended into the branches and twigs; and as they were closely attached to the inner surface of the artery, must have been a product of inflammation. Under these circumstances no supply of blood could be transmitted to the lower branches and their anastomotic communications.

ART. 39.—*Injurious effects of Pressure in the employment of the Taxis for the reduction of Hernia.* By P. P. TEALE, Esq., Leeds Infirmary.

(*From a Practical Treatise on Abdominal Hernia*, 1846, p. 36.)

A man, aged 39, was admitted into the Glasgow Infirmary, having had a reducible hernia for ten years, which had been strangulated ten hours. During this time a surgeon had made powerful and continued efforts to return the displaced parts, and on his admission into the hospital, the taxis was again rather forcibly employed. When the patient was seen by Dr. Macfarlane, he considered it improper to make any further attempts at reduction. The scrotum was much swollen and discoloured. When the sac was opened, not less than a pound and a half of dark-coloured blood escaped, a considerable quantity of which was pressed from the depending part of the scrotum. The hernia consisted of a large part of omentum, which was covered with coagulated blood, and of nearly two feet of intestine. The omentum was bruised and lacerated, and the protruded gut was almost wholly separated from the mesentery; it contained several rents, which passed in a longitudinal direction, and into each of these openings two or three fingers could be introduced. Mr. King possesses the unpublished records of forty cases of strangulated hernia; eight of these proved fatal after reduction by the taxis; six from rupture of the intestines; one from peritonitis, and one from having been reduced in mass. Even in cases which recover it is not uncommon to find peritonitis of such intensity as to endanger life, following reduction by the taxis. The return of the hernia in mass whilst strictured by the neck of the sac is an accident of a most formidable character, which occasionally, though rarely, results from manual pressure; this accident may occur even under the employment of such a degree of pressure as the surgeon was justified in exercising.

---

## SECT. III. TREATMENT OF SURGICAL DISEASES.

ART. 40.—*Cases of Abscess of the Tibia, with their Treatment.* By Sir B. C. BRODIE, Bart.

(*Condensed from a Lecture delivered at St. George's Hospital. The Medical Gazette*, Dec. 1845, p. 1399.)

Bones are organized like soft parts; they have the same apparatus of arteries, nerves, and cellular tissue, and they have superadded to these the unorganized phosphate of lime. Having the same tissues as the soft parts, they are liable to very much the same diseases, but the characters of these diseases, their symptoms, progress, and treatment are much modified by the presence of the unyielding earthy material which I have mentioned. Inflammation may take place in bones, as it does elsewhere; it may go on to suppuration, and abscess may form in their interior, as it does in the interior of other organs. But there are these points of difference: an abscess formed in a bone, cannot very readily come to the surface, so that it may remain pent up for an indefinite period, the soft parts will

stretch, bones will not, and the consequence is, that an abscess situated in the latter is attended with much greater pain than that which occurs in the former. The patient's sufferings are consequently more severe and they are protracted for a very much longer period.

In the year 1824 I was consulted by a young man, 24 years of age, under the following circumstances:—There was a considerable enlargement of the lower end of the tibia, but the ankle-joint admitted of every motion, and was apparently sound. The skin was thin, tense, and closely adherent to the periosteum. There was constant pain in the part, generally of a moderate character, but every now and then it became excruciating, keeping the patient awake at night, and confining him to the house for many successive days. It made his life miserable, and his nervous system irritable, one effect of which was that it spoiled his temper, and thus produced another set of symptoms in addition to those which were the direct consequences of the local malady. The disease had been going on for twelve years. He had used a vast variety of remedies, but had never derived benefit from anything that was done; instead of getting better, he every year became much worse. I tried some remedies without any advantage, and at last recommended that he should lose the limb. Amputation was performed, and the lower end of the tibia was enlarged, the surface of it presenting marks of great vascularity. The bone in the preparation being divided longitudinally, just above the articulating surface there was a cavity as large as a small chesnut. This cavity was filled with dark coloured pus. The inner surface being smooth, the bone immediately surrounding it was harder than natural. This was an abscess of the tibia, trying to stretch the bone, and thus causing the violent pain which the patient suffered.

About two years after the occurrence of this case, I was consulted by another patient, 23 years of age, who had an enlargement of the upper end of the tibia, extending to some distance below the knee. He suffered a great deal of pain, the part was very tender, and there were all the symptoms of chronic periostitis. I made an incision over the part, dividing everything down to the bone, and found the periosteum very much thickened. There was a new deposit of bone under the periosteum, softer than the bone of original formation. This operation, as in other cases of chronic periostitis, relieved the tension and the pain, and the patient was supposed to be cured. However, about a year afterwards, in August, 1827, there was a recurrence of the pain; the enlargement of the tibia, which had in some degree subsided, returned, and it continued to increase. In the enlarged tibia there was one spot a little below the knee, where there was exceeding tenderness on pressure. The symptoms bore a very close resemblance to those in the last case; the only difference being that, as the disease had been of shorter duration, the pain was less severe, and that the tibia was affected in the upper instead of the lower extremity. I concluded that there must be an abscess in the centre of the bone, and applied the trephine to the tender spot. I used the common trephine, made for injuries of the head, which, having a projecting rim or shoulder, would penetrate only to a certain depth. However, it enabled me to remove a piece of bone of sufficient thickness to expose the cancellous structure. Then with a chisel I removed some more of the bone. Presently there was a flow of pus in such a quantity as to completely fill the open-

ing made by the trephine and the chisel. It seemed as if the bone had been, to a certain extent, kept on the stretch by the abscess, and that, as soon as an opening was made into it, it contracted and forced up the matter. The patient was well from that time; the wound healing very favorably, and he has never had any return of the disease.

Some time after this I was consulted by a gentleman who had an enlargement of the lower end of the tibia. He suffered constant pain, but every two or three weeks there was an exacerbation of it, and it was then very excruciating, almost intolerable. These attacks sometimes lasted two or three hours; sometimes one or two days. This patient when he came under my care was 34 years of age; he traced back the disease for 18 years, and stated that it began in the following manner: on going to bed one evening, he felt a sudden pain in or just above the ankle-joint; the next day there was a swelling in this situation. He was laid up with inflammation, and two abscesses burst in succession, but afterwards healed. He continued well for some considerable time, and then he was again seized with pain in the ankle. This pain was not constant, but occurred at intervals. Sometimes there were several months during which he was quite well. (These points are worthy of notice with respect to the diagnosis, as I shall show you presently.) After some years, however, the pain was never absent, and he got into the state in which he was when he sought my advice. On examining the ankle I found the tibia considerably enlarged. The motion of the joint was perfect, but there was one tender spot on the inside of the bone that seemed to indicate the seat of an abscess. I applied a trephine here, and penetrated into a cavity large enough to receive the end of the finger. There gushed out a quantity of matter, perhaps a drachm or more. The inner surface of the cavity was extremely tender, so that he could not bear the introduction of the finger, or even of a probe. On the following day there was a good deal of inflammation in the neighbourhood of the part in which the operation was performed; in the course of a few days an abscess formed, which burst externally just below the ankle, and then the inflammation subsided. The opening made by the trephine became filled up with granulations, and the wound healed favorably. This took place many years ago; I have seen the patient every now and then since, and he has continued perfectly well.

I have had two cases of this kind since under my care in this hospital. One was a boy who had a considerable enlargement of the lower end of the tibia, attended with a great deal of pain. I trephined the bone, and let out nearly half an ounce of matter. The other was a man, whose case I will give a little more in detail. His name was Mowbray and he was admitted in October, 1838, being then 24 years of age. He had an enlargement of the upper end of the tibia, extending to the distance of two and a half inches below the knee. The circumference of the leg at this part was an inch more than that of the leg of the other side. The skin over the enlarged bone was tense, and there was a blush of dark redness on the inside. He said that six years ago there took place some enlargement of the head of the tibia, attended with a dull pain. Leeches were applied, and some other treatment was had recourse to. The pain continued for about six months, it then subsided, and he became quite free from it, until about three months before he came to the hospital, when it returned,

and the bone began to enlarge. The pain at the time of his admission was so severe that he could not sleep at night. It affected his health; he had lost flesh, and could take little or no food. I concluded that there was probably an abscess in the tibia, but as the disease had only been of short duration, I thought it might be better to treat it in the first instance as if it were merely chronic inflammation. I prescribed calomel and opium, sarsaparilla, and iodide of potassium one after the other. At last, there being no amendment, I applied the trephine at that spot where the bone appeared more tender than elsewhere, and thus exposed an abscess which contained two or three drachms of pus. The relief was immediate, and soon after the patient left the hospital cured.

In the year 1841 a young lady came to consult me on account of pain in the lower end of the tibia. It began in the spring of 1835, when she had an attack of what appeared to be inflammation in that bone. The pain was at first confined to the lower end of the tibia, but afterwards she had, in addition to it, other pains apparently of a nervous character, extending up the limb to the hip. She was of an hysterical constitution, which might, perhaps, make the diagnosis of the disease a little more difficult, the hysterical pain being mixed up with the other. However, I found her having occasional attacks of most severe pain in the lower end of the tibia, the bone being enlarged, and tender to the touch; and after a most careful examination, I was satisfied that there must be an abscess in the bone, and recommended the application of the trephine, but the operation was not performed. She dragged on a miserable existence for four years more. Last August she came again under my care; the tibia was then very much enlarged; at times she was quite free from pain, at other periods she had severe attacks of it, so that she could not sleep at night. I was still of opinion that there was a collection of matter within the tibia, and the operation was performed. The bone was excessively vascular, so that there was a good deal of bleeding, and towards the end of the operation, a quantity of what appeared to be sero-purulent fluid gushed out from beside the trephine, mixing with the blood. At the bottom of the bone removed by the instrument there was a cavity that would just receive the end of the finger, and from which the fluid had escaped. After this, she had considerable pain for some time, but evidently of an hysterieal character. She went into the country, the wound has been for some time healed, and she is free from all her former symptoms. The piece of bone taken away is harder and more compact than it ought to be just above the ankle, where in the natural state there is a mere cancellous structure. On its under surface is one corner of the cavity in which the sero-purulent fluid was lodged.

Since I first published some observations on the subject, in the year 1832, similar cases have been treated successfully in the same manner by other surgeons. Mr. Liston has given me an account of two such cases, and I have in my possession the written statement of a third, occurring in the hospital at Lincoln.

When the tibia is enlarged from a deposit of bone externally—when there is excessive pain, such as may be supposed to depend on extreme tension, the pain being aggravated at intervals, and these symptoms continue and become aggravated, not yielding to medicines or other

treatment, the existence of abscess in the centre of the bone may reasonably be suspected. It is not to be supposed that there is no abscess because the pain is not constant; on the contrary, pain very often comes on only at intervals, and in one of the cases there was an actual intermission for two years. After the disease has existed a certain number of years, the pain never entirely subsides; but still it varies, and there are periods of abatement and exacerbation. The combination of circumstances which I have described will fully justify the making an opening into the bone with the trephine.

If mistaken in the diagnosis, taking out a circle of bone is unattended with danger, and can be of no consequence. These abscesses cannot exist for many years without the joint being endangered. A man was admitted in February, 1837, with the upper end of the tibia enlarged just below the knee-joint; there was an opening leading down to the centre of the bone, and a probe passed into it came in contact with a piece of bone that appeared to be dead and loose, so that it was plain that a piece of bone in the centre of the tibia had exfoliated, and formed an abscess, which had afterwards made its way externally. Whenever the patient took exercise there was an accumulation of fluid in the knee-joint, the swelling disappeared on the joint being kept quiet, and the motion of the joint was perfect, or nearly so. The opening in the bone was enlarged with a trephine, and a piece of dead bone, about the size of a horse-bean, removed. The man had an attack of erysipelas, and died. On examination, the whole upper part of the tibia was increased in size from a deposit of scabrous bone on the surface; the cavity from which the dead bone had been extracted was of the size of a large cherry, and had a smooth internal surface, the bone around it being somewhat harder than natural; from this a sinus extended up to the knee-joint, and opened into it just at the anterior part of the spine of the tibia. The cartilages of the joint and the condyles of the femur had also suffered. Thus it is not safe to leave an abscess in the extremity of the tibia beyond a certain time; the joint is always in danger, and the perforation of the bone is the only remedy.

## Art. 41.—*Treatment of Anchylosis of the Knee-joint by a New Operation.*

By Gurdon Buck, M.D., Surgeon to the New York Hospital.

(*The American Journal of the Medical Sciences*, Oct. 1845, p. 277.)

William Keith, a farmer, of robust constitution, aged 22 years, was admitted September 12th, 1844, into the New York Hospital, with the right knee anchylosed at a right angle, in consequence of violent inflammation and suppuration of the joint, produced by a wound inflicted seven years previously with an axe, that had grazed the bone over the inner condyle, and which was followed by a confinement of seven months to the house; the limb continuing in the deformed position already noticed.

The joint was immovable, though the patient imagined he was able to produce a slight degree of motion. The condyles of the femur were prominent, and stood in advance of the tuberosity of the tibia, with the patella deeply and immovably imbedded between them. An irregular bony projection was observed over the inner condyle, where an extensive

sear marked the situation of the original wound. Several other sears were visible from which matter had been discharged in the progress of the inflammation consequent on the injury; for instance, one on either side in the ham, and three on the anterior and lateral surfaces above the condyles. The tendons in the ham stood out in prominent relief from the limb. The skin and subjacent soft tissues enveloping the joint were supple and healthy. Since his recovery from the effects of the injury, the patient had enjoyed uninterrupted good health, and had been free from pain or tenderness in the knee; he had been accustomed to walk with one crutch, though sometimes he dispensed with it, and stooped to accommodate himself to the shortened condition of his limb. The deformed limb was shorter, and in every respect less developed than its fellow.

It was explained to the patient that, from the condition of the joint, the limb did not admit of being improved in its condition by any ordinary surgical operation, but that in a few similar cases an extraordinary operation, consisting in removing a wedge-shaped portion of bone from the femur above the condyles, had been resorted to with favorable results. There being some weighty objections to this operation, it was proposed to modify it in this case, and as the joint itself no longer existed in its normal condition, with secreting articular surfaces, it was judged equally safe to perform a similar operation upon the parts appertaining to the joint which, to all appearance, were free from disease. The advantages contemplated by this modification were, that more extensive surfaces of contact for bony union would be obtained, and greater strength of limb secured, with less remaining deformity, than was practicable in the operation of Dr. J. Rhea Barton, of Philadelphia, already alluded to. The operation was performed on the 12th day of October, 1844, as follows:

*Operation.*—Preparatory to the operation, the tendons of the biceps, semi-tendinosus, semi-membranosus, and graeilis muscles, had been divided five days before, in the usual manner, by two subcutaneous incisions, in doing which the peroneal nerve was unintentionally cut across, and was followed by numbness and pain extending to the foot; the punctures, however, had healed, and no inflammation remained in the ham.

The tourniquet having been applied to the upper part of the thigh, an incision was made from the outer to the inner condyle, across the middle of the patella, and a second incision from the middle of this, perpendicularly downwards, to the tuberosity of the tibia. The included angles of integument were dissected down to a finger's breadth below and parallel with the margin of the articular surface of the tibia. The ligamentum patellæ and the fibro-ligamentous tissues on either side were cut through on the same level to the extent of nearly two thirds of the circumference of the bone. With the amputating saw a section of the tibia was made at three fourths of an inch below the joint anteriorly, and directed with a slight obliquity upwards, so as to terminate at the margin of the articular surface posteriorly. Two thirds of this section was accomplished with the amputating saw. The second section was then commenced through the upper part of the patella, parallel with the first, and on a plane forming an angle with it, less than a right angle, and continued to about the same extent as in the first section with the same saw. The remainder of the section through the tibia, as well as through the

condyles, was completed with a metacarpal saw and chisels. The included wedge-shaped portion of bone being removed, it was found that the section had not been carried far enough backwards, the posterior portion of the condyles still remaining consolidated with the tibia.

To include this, a new section was undertaken, commencing upon the cut surface of the femur, three fourths of an inch anterior to the angle at which the sections already made met, and directed backwards and upwards on a plane more oblique in reference to the axis of the femur. This new section being removed, the remaining points of connexion were ruptured by cautiously flexing the leg on the thigh, after which the irregular prominences were pared away with the bone forceps. An attempt was now made to extend the leg upon the thigh, when it was found that the bony surfaces could only be brought to within a finger's breadth of each other anteriorly. The soft parts in the ham being rendered tense, and opposing great resistance to the extension, the attachments of the ligaments were dissected up posteriorly from the tibia, while the leg was held in a state of extreme flexion, and in addition to this, a further section of five eighths of an inch thick was removed from the anterior two thirds of the femur.

The leg could now be extended to the required degree with the bony surfaces in contact at every point, and the soft parts posterior to the joint were in such a state of tension as to give steadiness and solidity to the coaptation.

The section of the condyles exceeding that of the tibia in its antero-posterior diameter, caused an overlapping in front of about half an inch. The hemorrhage was very moderate, and only two ligatures were required to small branches given off by the popliteal trunk. The soft parts posterior to the joint, and separating it from the artery, were very little disturbed. The angular flaps of integument being redundant in the new position of the limb, were pared away to the required extent, and secured in contact by seven sutures. The limb was then placed on an inclined plane, with a slight angle at the knee, and after the patient was removed to his ward, adhesive straps were applied between the sutures, and a compress of dry lint laid loosely over the whole.

The operation, exclusive of the dressings, occupied forty minutes, and though very painful, was borne with remarkable fortitude.

During the first days after the operation, the inflammatory symptoms ran high, and repeated applications of leeches were required; free suppuration established itself, but the greatest source of suffering was a twitching of the muscles, not confined to the limb, but extending to other parts of the body, and even to the bowels. After about seven weeks, the pain and twitchings having gradually diminished, and ultimately ceased, the wound was healed. The limb throughout the treatment was supported on a double inclined plane, with lateral splints and pads above and below the knee, and anodynes afforded most relief The patient left his bed in about twelve weeks, with the limb supported in the apparatus employed for forcible extension of the knee-joint. At this time slight motions of flexion and extension were perceptible, but none in a lateral direction. As the patient's general health improved, he acquired strength in his limb, and soon walked about with the aid of a cane only. The bony union at the knee ultimately became firm, and the

cicatrices of the skin, as well as the subjacent tissues, were supple and moveable. The difference in the length of the limb was about five inches at the heel, of which not more than one half could be imputed to the operation, the remainder depending on defective growth subsequent to the inflammation of the joint. This difference was compensated for by a stirrup-shaped frame secured to the sole of his boot by means of an iron plate.

*Description of the excised bones.* The inferior two thirds of the patella had been removed by an oblique cut from above downwards and from before backwards, and was found consolidated with the outer condyle by bony growth, without any trace of the line of junction. It was adherent to the inner condyle by condensed cellular tissue. Both condyles were buried into and consolidated with the articular surface of the tibia.

The cut surface of the condyles, for the most part, presented a compact eburnated texture, with only slight remains of cellular tissue interspersed. The space between the patella and tibia, and behind the ligamentum patellæ, was filled with condensed adipose and fibrous tissue.

No vestiges remained of cartilage or synovial membrane.

The cut surface of the tibia presented its normal cellular texture, except a single large cell capable of holding a filbert, near the outer edge of the bone, and having for its upper wall the thin compact shell of the articular surface. The section of the patella was also of normal cellular texture, with a similar large cell of three eighths by three fourths of an inch in extent. A third and much larger cell, capable of containing a hickory nut, occupied the inner condyle near its articular surface. These cells were lined with a thin reddish membrane, and contained an oily and fatty matter of reddish colour. Another incomplete cell was also found in the outer condyle, intersected with septa, subdividing it into smaller compartments lined and filled like the rest; none of these cells perforated the outer shell of bone, though at some points they approached very near it.

Subsequent, long-continued maceration, separated the several parts from each other.

*The Operator's Remarks.* Though this operation was severe, the subsequent inflammation and suppuration were by no means excessive, and were confined to the parts immediately involved. Primary union of the edges of the wound took place to as great an extent as was desirable; openings remaining over the condyles at the extremities and in the middle of the transverse incision for the discharge of matter. At one time, a small opening formed posteriorly in the ham, and after discharging a few days, closed spontaneously; with this exception, there was no burrowing of matter between the muscles, and at no time did the discharge exceed two ounces in twenty-four hours.

In the operation, the aim was to disturb as little as possible the soft parts beyond the limits of the joint, especially those posterior to it, so as not to establish any direct communication between the wound and the loose intermuscular cellular tissue by which inflammation is so readily propagated. The long continuance of the pain in the knee and the twitchings, notwithstanding the generally favorable aspect of the parts themselves, were the principal cause of solicitude. Though the patient's condition at no time could be viewed as critical, yet his pro-

traeted sufferings, mitigated only without being controlled by anodynes, neeessarily kept alive apprehensions as to the ultimate result. It may be reasonably questioned, whether these painful symptoms were neeessarily ehargeable upon this operation, or were not rather to be attributed to eertain peeuliarities in this ease that might be avoided in another. For instance, the division of the peroneal nerve in the seetion of the tendons, and the subsequent stretching of its reeent eicatrix, together with the general state of tension of all the tissues in the ham, produeed by the altered position of the limb. This is more probable from the faet that the patient eomplained of pain along the eourse of the peroneal nerve, and of twitehings of the posterior muscles of the limbs as more severe than elsewhere.

## Art. 42.—*A novel, simple, and successful Method of treating Ruptured Tendo-Achilles.*

By Alex. J. Hannay, m.d., Surgeon to the Glasgow Royal Infirmary.

(*The London Medical Gazette*, Nov. 1845, p. 1282.)

Ruptured tendo-Aehilles is very effeetually and eompletely treated by the applieation of adhesive straps, whieh I apply in the following manner:—I plaee the foot in a moderately extended position; I then plaee a strap of very adhesive plaster, two and a half inehes broad, and warmed, reaehing from the toes on the plantar aspeet of the foot, passing over the heel; it is then earried up, pretty firmly stretehed, straight to the ealf of the leg, and as high as the ham; it should not toueh the skin over the tendon at this stage of the application. There is, at this period of the dressing, an areh formed between the plaster and the surfaee of the ankle, or small part of the limb. Similar straps, say two or three, are plaeed, exaetly as this one, upon it, and by its side, to straighten it. All this time the foot is kept, as at first, moderately extended, and retained in this position whilst a turn or two of a roller, or a strap of adhesive plaster, is plaeed round the ealf of the leg, and around the dorsal end of the foot, to prevent the straps first applied from yielding. Things being thus adjusted, I apply a roller firmly from the toes up to the knee. In doing this, the plasters first applied, and forming an areh at the baek of the ankle, are, by the firmly-applied bandage, pressed down, and brought into eontaet with the skin eovering the ruptured parts of the tendo-Aehillis. In this way the torn ends are brought and held in elose eontaet, and prevented from separating in every direetion, support being afforded them on eaeh side; and all movement of the ankle, partieularly its extension or flexion, being prevented, there can be no separation of the torn ends; they must lie in perfeet quietude, and in apposition the most approximate for speedy union. This is aeeomplished with the least possible uneasiness to the patient, who ean, by the help of a eruteh, move about to a limited but eonvenient extent. I have aeeomplished by it several very rapid eures of the aeeident; it is an apparatus easily and soon proeured, and its eheapness reeommends it to institutions for the relief of the poor and destitute.

ART. 43.—*Compression in the Treatment of Cancer.* By W. H. WALSHE, M.D.

(*The Nature and Treatment of Cancer. London*, 1846.)

M. Récamier has employed compression upon a very large scale, and the more important part of his result is as follows:—Of one hundred cancerous patients, sixteen appeared to be incurable, and underwent only a palliative treatment; thirty were completely cured by compression alone, and twenty-one derived considerable benefit from it; fifteen were radically cured by extirpation alone, or chiefly by extirpation and pressure combined, and six by compression and cauterization; in the twelve remaining cases the disease resisted all the means employed. MM. Blizard and Masson have published three cases, and M. Carron du Villards three others—in all of which irregular nodular scirrhi, the seats of lancinating pain, &c., were removed by compression. Dr. A. L. J. Bayle gives as the general results, in 127 recorded cases, 71 cures, 26 instances of improvement, 36 of total failure. These results, the most favorable on the whole that can be adduced in favour of any mode of treatment, bear scrutiny of the severest kind. It is no doubt true that, in some of the cases alleged to be cancerous, neither of the anatomical species of that affection existed; but it is, on the other hand, perfectly unquestionable, that many of the absorbed growths were not only actually scirrhous, but had already become the seat of ulceration, when submitted to compression.

Difference of opinion has existed as to the best mode of applying compression. M. Récamier employs perfectly smooth discs of agaric, laid over each other, and retained in situ by a roller, as the compressing materials. M. Bégin sometimes substitutes a laminated plate of lead, modelled to the tumour, and surmounted with a pyramid of graduated compresses. This application (which is far from a novel one) frequently becomes painful, and cannot be endured. M. Récamier recommends renewal of the apparatus every day, or every second day; M. Bégin thinks it better to change only when the bandages grow loose, and prefers, in consequence of this view, an elastic corset, capable of accommodating itself to the decreasing size of the part, as the compressing agent, whenever circumstances admit of its use. But all contrivances of these kinds are ineffectual, for various reasons. 1. They exercise unequal and irregular pressure on the tumour. 2. They confine the movements of the chest to a degree varying with the amount of constriction. 3. The force employed is not directed against the diseased mass alone, but wasted, in great measure, upon the healthy parts. 4. While the difficulty of applying the apparatus effectually is extreme, it invariably loosens and becomes more or less disarranged within a short period after its application. Besides all this, the least unevenness in the material lying next the diseased structures renders the compression unbearable, from the pain it produces. These are the chief reasons, doubtless, which have hitherto prevented compression from taking its ground as a general system of treatment of various external cancers.

DR. ARNOTT'S PLAN.—The fertile ingenuity of Dr. Neil Arnott (already so successfully and so variously employed in devising mechanical

means of relieving human suffering) has triumphed over these difficulties. Dr. Arnott has invented a method of applying compression, which, while it is free from all the objections mentioned, is philosophical in principle, and possessed of peculiar practical excellences. His apparatus consists of a spring, an air cushion supported by a flat resisting frame or shield, a pad, and two belts. The spring, which is of steel, is the compressing agent—its strength being varied with the amount of pressure it may be desirable to obtain. The shield, varying in shape somewhat with the circumstances of particular cases, is generally slightly convex on the external surface, of circular or oval outline, and formed of a rim of strong wire, connected at two opposite points by a flat piece of iron, which serves for the support of the spring, screws, &c., the whole being covered with jean. To the rim of this shield is sewn a sort of conical cap of soft linen, designed to receive the air cushion, to keep it *constantly slack*, and prevent it from slipping about when applied. The air cushion thus kept slack, fashioned into a sort of double nightcap, lying in apposition with the inner surface of the shield, and sufficiently filled with air to prevent the latter from pressing directly on the part, receives within it the tumour to be compressed. One end of the spring is attached by screws to the external surface of the frame, and the other end to a solid but soft pad, placed wherever the counter pressure is to be made. The straps are used to keep the apparatus steadily fixed. Let us suppose that the breast is the region to which the instrument is to be applied; the position of its various parts will appear as they are represented in the figures. The spring may either be passed over the shoulder or round the waist; the latter mode of application suits best, when the tumour is seated towards the external border of the breast, and inclined to slip towards the axilla.

The mechanical advantages of this mode of compression are, that the movements of the thorax are not interfered with; that the amount of pressure may be regulated to a nicety; that the whole morbid mass undergoes constant, equable, and uniform pressure; that the part is protected from external injury (a point of serious importance); and that, unless in a very few exceptional cases, the apparatus may (either with the shoulder or waist spring) be very easily arranged. It is necessary that the amount of pressure should be low at first (say 2 lb.), especially in cases of nervous, irritable people—in fact, that the instrument should rather supply a support for, than exercise pressure on, the part; that the entire morbid structure (as well as any connected loose soft parts, which might be injured by accidental pressure of the rim of the shield) should be included within the cushion; and that in all cases, there be a distinct thickness of air-cushion between the shield and the skin.

The effects produced by pressure are removal of existing adhesions, total cessation of pain, disappearance of swelling in the communicating lymphatic glands, gradual reduction of bulky masses to small, hard, flat patches or rounded nodules (which appear to be, both locally and generally, perfectly innocuous), and, in the most favorable cases, total removal of the morbid production. The relief of pain afforded by the instrument is, without exaggeration, almost marvellous; this effect is ensured by the peculiar softness and other properties of the air-cushion, the medium through which the pressure of the spring is transmitted to the surface. Females unable to obtain sleep, even from enormous doses of laudanum,

on its application, cease instantaneously to suffer; and sleep thenceforth as though they were perfectly free from the disease.

There are certain conditions which either interfere altogether with the use of the instrument, or reduce it to a merely palliative agent. These conditions are, more particularly, excessive bulk of the new growth, and such localizations of this structure as place any portion of it beyond the reach of pressure. Persons of irritable skin and temperament, and prone to become œdematous or anasarcous, are with some difficulty manageable. Less is to be expected in cases of encephaloid cancer than of the other species, and in cases of infiltrated than of tuberous accumulation. If the morbid mass be extensively softened, ulcerated, or in a state of fungous vegetation, palliation is all that can be fairly hoped for. Adhesion to the skin is of untoward influence. As a means of controlling and averting hemorrhage, the slack air-cushion pressure is of high utility.

Pressure, on Dr. Arnott's system, is applicable to cancerous tumours in every situation where a bony or other solid support exists behind the growth, and where a point for counter-pressure can be had. The mamma, the limbs, the surface of the thorax or cranium generally, are the seats in which the mode of treatment is most readily applicable. I see no reason why cancer of the testicle might not be treated thus; and gentle pressure on this plan deserves a trial in certain cases of cancer of internal parts (it would surely relieve pain), provided the general functional relations of these parts do not interfere (and they will not often do so) with the adoption of such pressure.

The system of pressure now described, useful as it is, independently of all other treatment, may be rendered more efficacious by the association of other external means and internal remedies.

ART. 44.—*A new method of employing the Taxis for the reduction of Strangulated Inguinal Hernia.* By CASIMIR GRYNFELTT, D.M.P., Ex-Surgeon of the ancient Polonese army.

(*Revue Médicale*, Janvier, 1846, p. 44.)

Elizabeth C., aged 40 or 42 years, of sanguine temperament and in good health, had an inguinal hernia on the left side for two or three years. It inconvenienced her very little, and until the present occasion, she reduced it herself, when pain occurred, with the greatest facility.

At the beginning of December, 1845, the hernia became strangulated and irreducible; Dr. Grynfeltt was called, and by appropriate treatment the danger disappeared in a few hours. On the 25th of December, after trying to lift a load of corn, the hernia came down again, which did not prevent the patient continuing at work, kneading bread, without pain; but after ceasing work she suffered much, and took a bath for three hours without relief. She continued in this state till the 2d of January.

On the morning of this day, the tumour was found to be the size of a small hen's egg, and, as well as the whole of the lower belly in the vicinity of the hernia, very painful to the touch. The pain extended even to the umbilical region. There were efforts to vomit, and the pulse was strong and frequent. Every attempt at reduction proved fruitless. She was

bled abundantly, had a bath for three hours, then a large cataplasm and two emollient lavements.

In the evening the hernial symptoms continued, the abdomen was more painful; there had been syncope and bilious vomiting during the day. The taxis was impossible, the necessity of the operation was urged, but the performance of it delayed; leeches and cataplasms were applied.

On the morning of January 3d the patient was in great danger; there had been little sleep during the night; the tumour and the abdomen more painful; repeated vomiting; slight but frequent syncope; pulse small, and without force. Unsuccessful efforts were made by Dr. H. Barrès to reduce the hernia. In the evening, in spite of the dangerous state of the patent, Dr. Grynfeltt did not dare to perform the operation, in consequence of the aversion of the people to cutting instruments, but the following new method of employing the taxis suggested itself:

The thighs were bent as much as possible on the pelvis, leaving the tumour so that it could be easily laid hold of. The loins, thorax, and head were bent forwards as much as possible, so that the body was in a manner doubled. In this position it will be easily conceived the abdominal walls were in the most complete state of relaxation. Then, with the fingers of the left hand, the hernial tumour was seized at its base and slightly compressed, and at the same time, with the right hand, the integuments of the abdomen were drawn up as much as possible in the neighbourhood of the ventral orifice of the inguinal canal, and by a simultaneous movement of the integuments, aided by the sensation of the fingers properly supporting the parts, traction was produced on the strangulated intestines, with the effect of drawing them back within the abdominal cavity. At the first motion, Dr. Grynfeltt had the satisfaction to feel under the left hand, which supported the hernial tumour, the motion of the fecal matters and gas contained in the strangulated portion of intestine. Combining the pressure of the hernia with the traction of the intestines in the abdomen, reduction occurred in a few instants.

The operation consists in drawing the strangulated portion of intestine into the abdominal cavity, instead of endeavouring to force it back, and believing this process to be new, it rests with practitioners to appreciate its advantages.

ART. 45.—*Ligature of the Left Subclavian Artery between the Scaleni Muscles, attended with some peculiar circumstances.* By J. C. WARREN, M.D. Boston, Hon. Member of the Royal Medical and Chirurgical Society.

(*The London Medical Gazette*, Dec. 1845, p. 1394.)

James A., aged about 30, on the evening of December 23, 1843, while in a state of intoxication, slipped on ice, fell, and struck his left shoulder against the kerb-stone of the side walk. Surgical aid was called, and violent efforts were made to reduce the dislocation, but in what manner the patient could not tell, excepting that he thought one person placed his foot with a boot on in the axilla. He was sent to the hospital, and on the next day was seen by the author, who found the left arm and shoulder much swollen. Leeches and cold applications were employed, and on the following day the swelling was so much reduced as to enable him to decide that no dislocation existed. During the night of the third day following,

(December 28), the patient was seized with a violent fit of coughing, in which he felt something give way in his shoulder. The next morning the shoulder and arm were very much discoloured and enlarged, the arm was painful, and the patient much prostrated. On the 30th it was discovered that the man had no pulse in his left wrist, or in any part of the arm; and he had also lost both feeling and motion in the extremity. The swelling increased until it became enormous, the arm turning back in the axilla. A vesication was noticed on the back of the fore-arm. January 27, 1844, an abscess was found to be forming in the axilla; in seven days it pointed, but did not open till February 4th, when it discharged a coagulum, and about a pint of fluid dark-coloured blood. Three days subsequently, at six o'clock in the morning, a sudden gush took place from the wound, by which the bed was inundated, the mattresses soaked, and the blood poured upon the floor. Exhausted and almost lifeless, he sunk into a state of syncope, and the hæmorrhage ceased. As he was too low to undergo any operation, it was agreed that if he lived to the next day, the subclavian should, if possible, be tied. By the next morning he had much revived. At ten o'clock he took eighty drops of the tincture of opium, and at eleven was carried into the operating theatre.

A great difficulty presented itself in the outset of the operation, the swelling of the shoulder, the tumour in the axilla, and the natural shortness of the neck, almost obliterating the space between the shoulder and lower jaw. The author, after minutely detailing the steps of the operation, states that the aneurism needle was passed under the first dorsal nerve, which was mistaken for the artery. The wound was too deep, too narrow, and of consequence too dark to permit the artery to be visible. The anterior scalenus was partially visible, and passing the forefinger of the hand to the edge of this, a good portion of the muscle was divided by the probe-pointed bistoury, introduced upon the finger. The subclavian artery then became quite sensible to the touch and slightly distinguishable by the eye. A long aneurism needle was passed under the artery, and at this moment a slight whistling was heard, and the author was satisfied that some air had entered the thorax. The ligature was tied, and the wound closed.

The patient improved after the operation. On February 22d, the thirteenth day, the ligature was removed. On the 29th, a stream of blood was seen to issue from the unclosed part of the wound; the blood lost amounted to about a pint, did not issue per saltum, and was of a venous colour. The hæmorrhage was arrested by pressure. At the commencement of March he had an attack of pneumonia, confined to the lower lobe of the left lung, and also a second attack about the 1st of May. By the 1st of October, the swelling had disappeared from the arm, and the motion had returned in the shoulder-joint. The large excavation in the axilla was reduced to a fistulous tube. On February 4th, 361 days after the operation, the author was able for the first time to detect a distinct pulsation in the radial artery, and subsequently one of an indistinct character in the ulnar and brachial. The patient, June 15th, had nearly recovered. There were still fistulous openings in the neck and axilla. Sensation and motion were slowly improving.

The author remarks, that the cause of the rupture of the subclavian artery in this case is involved in some obscurity. The probability seems

to be, that great violence was employed in the attempt to reduce the bone, and that the arteries and nerves were contused by strong pressure of the operator's boot, combined with the forcible extension of the arm. The vessel did not rupture immediately, because its coats were contused, and not torn asunder, but a separation of the contused parts took place, in consequence of the violent efforts of coughing on the fifth day after the accident. The author, after noticing the occurrence of secondary hemorrhage twenty days after the operation, makes some extended observations on adhesion of the coats of the vessel within the ligature, on the formation of a plug of coagulum, on the cardiac side of the ligature, and on the effusion of lymph external to the artery.

In the discussion which ensued, Mr. Quain stated his opinion that when there was any difficulty about placing a ligature on the subclavian where it rests on the rib, it should be made a general rule to seek it beneath the scalenus, or after it has passed beyond the muscle, and before it approaches the tubercle on the rib; this part of the artery being higher and more accessible than where it rests behind the tubercle on the rib. Mr. Quain cites cases in support of his opinion.

ART. 46.—*Gastrotomy successfully performed in a case of Obstructed Bowels, from Adhesions produced by Inflammation, and also in a case of Intussusception.* By Dr. MANLOVE.

(*From the Northern Journal of Medicine*, Jan. 1846, p. 61.)

An interesting case in which this operation was performed, was read before the Tennessee State Medical Society, by Dr. J. C. Manlove, and is published in the 'Boston Medical and Surgical Journal' (July 23, 1845.) The patient, a coloured boy, 17 years of age, was suffering when Dr. Manlove first saw him (7th July, 1844) under some general uneasiness of the abdomen, and fever, and had been constipated for 12 or 15 days. He had taken Epsom salts, castor-oil, and several enemata, without effect. Bleeding *ad deliquium animi*, calomel, and opium, stimulating enemata, the introduction of flexible tubes, as far as possible, into the intestines, enemata with tart. antimony, &c., failed to produce an evacuation from the bowels. The patient's condition on the 10th July was as follows:—"Abdomen enormously distended; difficulty of breathing; extremities cold; pulse very feeble and quick; countenance anxious; no evacuation. Gastrotomy was considered the only possible means of even prolonging his life; and although the operation promised but little benefit, yet the certainty of death without it justified us, in our estimation at least, in undertaking its performance. An incision was made in the median line, commencing about two inches below the umbilicus, and extending down towards the pubes four or five inches. The peritoneum and bowels along the lower half of the incision had formed a most intimate adhesion, and in cutting through the former an opening of about one fourth of an inch in extent was made into the latter. From the opening there proceeded large quantities of flatus and liquid fæces, as well as the oil and turpentine which had been taken. On further examination, it was discovered that the intestines were united to the peritoneum by extensive adhesions at various points within reach of the finger and

probe which were separated. The wound was closed by sutures and adhesive straps, except the opening into the intestine. The amendment in all the symptoms in one hour was astonishing; the extremities became warm; the pulse slower and fuller, and during the morning the patient was able to fan himself, the weather being excessively warm. On the next day his appetite was good, and he continued to improve and to discharge the contents of the bowels through the artificial anus until the 17th day after the operation, when the bowels acted naturally, the opening having nearly closed.

Six months before the boy's present illness, he had received an injury from the falling of a piece of timber on the abdomen, from which the adhesions discovered in the operation resulted. The boy was well nine months after the operation, and was exhibited at the meeting of the society. The reporter advocates the operation in similar cases, and in support of his views adduced the following case:

"Dr. Wilson of this county was called to attend, in conjunction with several others, a negro man, who was supposed to be labouring under intussusception. All remedies had been used to procure evacuation of the bowels which ingenuity could suggest, but in vain; and the patient was reduced to the last point of life. Gastrotomy was determined to be the only means of affording relief. It was performed by Dr. Wilson, and the intestines drawn out of the cavity of the abdomen until the point of obstruction was arrived at. About one inch of the ileum was found to be invaginated, and the attempt to relieve the intussuscepted portion discovered the fact, that adhesions had been formed between the receiving and the received parts of the intestine. The adhesions were dissected loose, and the bowels returned into the abdomen. Natural passages immediately took place, and the patient was rapidly restored to perfect health.

ART. 47.—*Cases of Contracted Cicatrices treated by the Taliacotian Operation.* By J. C. PARKER, Esq., Surgeon to the Bridgewater Infirmary.

(*The Provincial Medical and Surgical Journal*, NOV. 26, 1845.)

Mrs. Wheeler's child, of Middlejoy, near Bridgewater, aged five years, had been severely burnt on the face, neck, and arms. When she first applied to me the sores were all healed, with the exception of the forearm. The head was drawn down by contracted cicatrices, so far that the cheek was within three fourths of an inch of resting on the right shoulder; the mouth was permanently open, and the lower lip everted and drawn so much to the right side, that the saliva could be only partly retained. The contracted cicatrix consisted of firm bands of skin, extending from behind the right ear to the shoulder, and from the lower lip and chin to the sternum.

On August the 2d, 1844, having placed my little patient on a table, and had her securely held, I commenced by passing a slightly curved needle and double ligature beneath the central portion of the contracted skin; this ligature I held in my left hand during the subsequent steps of the operation; then with a long narrow double-edged scalpel, transfixed as extensive a portion as I could, commencing in the sound skin on the scapular side, and cut it out upwards at the angle of the jaw, and down-

wards to the right clavicle, so as to remove the portion included in the ligature. The bands extending from the sternum to the centre of the lower jaw, were simply divided with the scalpel, and the head then restored to its proper position.

A flap of skin was next dissected from the front of the upper arm, of a sufficient length, and allowing for its subsequent contraction, a small connecting portion being left just at the point of the shoulder; the flap was then twisted round, laid on the neck, and secured to the sound skin on the scapular side by three sutures, the space being thus filled in a perpendicular direction, though only half covered in its transverse diameter.

Water-dressing was then applied over all. Not much blood was lost during this tedious operation, and considering the age of the child, it was borne very well. A collar, made with a piece of shoe-sole leather, and covered with chamois-skin, was put over the neck, and worn in the manner of a gentleman's stock. The patient was then removed to bed; only a small portion of the flap lost its vitality, and the parts healed favorably.

It is now a twelvemonth since the operation, and its success is so far complete that the position of the head is natural, and its motions perfect, with the exception of the power of turning it quite so far towards the left shoulder as the right; the only remaining deformity is the lip being still somewhat everted, though scarcely worth mentioning. The little patient still continues to wear the collar before mentioned, and as it is so easily concealed, she will continue to do so for a considerable time. This description of collar was found to answer very well, and I would recommend it for trial before any of the complicated apparatus in use for this purpose is adopted. The healthy skin united very favorably to the diseased, as in Mr. Carden's case, published in the 'Transactions of the Provincial Medical and Surgical Association,' vol. xii, p. 585, and it retains its natural appearance and functions.

I lately operated on a patient at the Bridgewater Infirmary, a boy 13 years of age, in which the contracted cicatrices on the inside of the fingers had drawn them so firmly into the palm of the hand that it was rendered useless. In this case the complete removal of the contracted skin, treating it afterwards by water-dressing, and during the healing of the sores keeping the fingers permanently extended on a flat board, restored all the uses of the hand and fingers.

A similar case I operated on in a young person at North Petherton, a few years since, where the fore-arm was so much bent on the upper arm from contracted cicatrix after burn, that the limb was nearly useless. In this case, by the adoption of the same treatment as in the preceding, all the uses of the limb were restored.

It was only a few years since it was generally held, and is now by many, that in these cases it was best not to interfere, as the contraction would again recur. From the number of successful cases which have been recorded, it appears there are comparatively few of these distressing injuries that may not be so far relieved as to restore the uses of the extremities, and in a great degree remove the deformity.

ART. 48.—*The Treatment of Varicocele by Simple Compression.* By the REVIEWER of Dieffenbach's Operative Surgery.

(*The British and Foreign Medical Review*, April 1846, p. 289.)

The unsatisfactory results of all the known methods of treating this disease, with the exception of the ligature of the veins, which, though often successful, is often followed by dangerous phlebitis, led us to reflect on the effects of the ligature, and the means of safely fulfilling the same indications. What is the effect of the ligature when successfully applied? Simply obliteration of the veins, preventing the gravitation and pressure of the column of blood by some other channel. Now came the question, how could compression be applied to fulfil the same purpose? At first sight it appeared that anything like compression between the varix and heart would inevitably increase the tumour, by preventing the veins from returning their blood to the heart; but still a ligature does so, and if it does not kill the patient, often cures the disease. We determined then to try the effects of compression upon the spermatic veins as they pass through the inguinal canal, and at first used linen compresses and bandages, with some encouraging result, but a little experience proved that a common truss was by far the most convenient means of applying pressure. We have notes of 24 cases of greater or less severity, in which wearing a truss from six to eighteen months has completely cured varicocele of long standing, The patient should be kept in bed, or on the sofa, with the scrotum elevated during the first week of its application, and the pad applied immediately above the pubes, so as to press upon the whole of the inguinal canal. The pad must not be too large and flat, or it will not answer the desired purpose; nor too conical, or it will not only cause inconvenience and pain, but also, by separating the fibrinous insertions of the oblique muscle, reduce their resistance to herniary protrusion. The common spring truss, well fitted, answers much better than the ball-and-socket pad, and has not the disadvantage of the pad behind. Immediate relief follows the application; the column of blood is prevented from bearing upon the dilated veins; they contract, and the portions subjected to pressure become either greatly thickened in their coats, as their hardness evinces to the finger, or perhaps altogether obliterated. We have not had hitherto an opportunity of examining the state of the veins after death, and therefore do not enlarge upon the anatomical effects of this mode of treatment, but strongly recommend it as a simple, safe, and successful substitute for former difficult, hazardous, and doubtful proceedings.

ART. 49.—*Vascular Tumour at the Orifice of the Meatus Urinarius. Operation and Cure.* By J. C. W. LEVER, M.D., Guy's Hospital.

(*The London Medical Gazette*, Jan. 9, 1846, p. 45.)

Sarah H., aged 67, was a patient in Petersham Ward, five years since, with severe neuralgic symptoms, which were treated by ammonia, quinine, &c., and the topical application of belladonna, and after some week's residence she left the hospital greatly improved.

In early life she menstruated regularly, but scantily, and married at

the age of 34. After she left Guy's Hospital she followed the employment of a sempstress, but was compelled to relinquish her work from severe pain in the urethra, irritability of bladder, and continued desire to void her urine, which she attempted every five minutes; difficulty, but no pain, was experienced in passing her motions.

After the trial of various popular remedies, as well as submitting herself to the care of surgeons, she applied at a dispensary at the west end of London; there the cause of her sufferings was detected. Her general health is tolerably good, and there is no discharge of any kind. At the time of her admission she had constant calls to void her urine, the passage of which occasioned her great pain; occasionally the pains are of a shooting character, extending upwards to the abdomen, outwards to the hips, and backwards to the perineum. On separating the external labia a vascular tumour was seen protruding through the meatus urinarius, of a florid red colour, and about the size of a kidney-bean. On minute examination, which was with difficulty accomplished, on account of the exquisite sensitiveness of the growth, it was found that it passed some little distance into the urethra, and was sessile; it bled upon the slightest touch, and the suffering occasioned by the examination was considerable.

The patient was placed on her back, and the tumour, with the lining membrane of the urethra attached to it, was removed. Arg. nit. was then applied, and she was desired to keep the part continually wetted with white-wash.

Oct. 18th.—Much pain followed the operation, and continued all night; the urine has passed; bowels costive. Haust. Sennæ C. stat.

20th.—Less pain; micturition not so frequent, and pain during the passage of the urine slight.

22d.—Seat of the growth was again touched with Arg. nit.

25th.—Slough has not yet separated. She was ordered to keep a white-wash poultice applied over the meatus.

Nov. 1st.—Slough has come away, leaving a healthy granulating wound.

5th.—Makes water in a good stream, and with no pain, part looking healthy.

8th.—Granulations sprouting. Arg. nit. dissolved in nit. acid to be applied.

13th.—The application caused considerable pain; the stream of urine full; and the pain in micturition has ceased.

18th.—Presented.

I have chosen to bring this case before you, as it will illustrate that particular form of vascular tumour to which females are liable, and which you will find described by Sir C. M. Clarke, at p. 289 of the first part of his work on the 'Diseases of Females.'

It appears from the history of this case, that the patient, during her residence in the hospital five years since, suffered from anomalous neuralgic pains, which were found on examination not to depend on organic disease of the uterus. These pains were relieved by attention to the state of the bowels, by the exhibition of ammonia and quinine, and the local application of belladonna. Females at this period of life frequently suffer from such pains; by the inexperienced, they are confounded with

those accompanying peritonitis, but a little caution will prevent you falling into this error; there is an absence of febrile symptoms, and the pulse is different; in peritonitis it is sharp and wiry; in neuralgia, it may be quick, but it is small, and easily compressed; in peritonitis there is tenderness, and that is materially increased by pressure, while in neuralgia the patient makes complaint when pressure is first employed, but if such be increased while she is engaged in conversation she will not complain. The position of the patient varies in the two diseases; in peritonitis, she lies with the lower extremities flexed; in neuralgia, she can keep them extended without difficulty or pain. It is of importance to make a correct diagnosis, for the treatment of the two diseases vastly differs. If the inflammation of the serous membrane be treated as neuralgia, death may sooner or later ensue, and those pathological changes which we usually find present in the abdomen will be found; there will be greater or less quantity of plastic or non-plastic effusion. On the other hand, if neuralgia be treated by those heroic remedies which peritonitis demands, the patient's constitutional powers will be shattered, her strength reduced, and the attacks of pain be rendered more frequent and enduring. The brief history of the treatment resorted to in this case will suffice to point out to you the plan of treatment necessary; the bowels should be thoroughly and daily evacuated, and tonics, as quinine, ammonia, &c., should be given in full doses. The diet must be generous, and the pain allayed by the topical application of anodynes. I have seen in some cases great advantage arise from the exhibition of iron and arsenic, but caution is necessary where the latter medicine is exhibited.

This patient left the hospital much benefited; in fact, so well as to gain her livelihood as a sempstress. But after a time the symptoms which prevailed on her admission commenced; viz. pain in the urethra, irritability of the bladder, constant inclination to void its contents, obstruction in the passage of the urine, and a sense of scalding during its passage; pain in the pelvis, coursing to the back, hips, and thighs was also complained of; she was weak, dyspeptic, dispirited, and worn out for want of sleep. Application to persons for relief was vainly tried, until the true nature of the case was detected at the Chelsea Dispensary. The growth at the time of her admission was of a florid red colour and granulated; it protruded through the meatus urinarius, with the margin of which it was unconnected, but had rather a broad and short stalk attaching it with the canal at the distance of about a quarter of an inch. The slightest pressure caused the tumour to bleed, and the most gentle touch occasioned her exquisite pain. These growths appear to consist almost entirely of vessels and their connecting cellular tissue; they must, however, be abundantly supplied with nerves, from the exquisite suffering they occasion. And here let me for a moment direct your attention to the varieties of these growths we meet with, and most of which you have seen among our in- and out-patients. Sometimes we have one in form and size like a small mulberry, having a slender stalk protruding through the meatus; sometimes these growths are no larger than a pea; in some cases they pass inwards along the urethra as far as, and even into, the neck of the bladder; they seem to have their origin below the mucous membrane, and from the submucous cellular tissue. In forming our diagnosis of these tumours, we must not mistake for them simple polypoid

tumours, which are occasionally found arising from within the urethra, and protruding through the meatus; it is true they dam the flow of urine, the water passes in a small and stifled stream; there may be great efforts to empty the bladder, and if the tumour be long overlooked the bladder may become thickened, and vesical irritation may ensue; but there is not that exquisite sensibility which is present where they are vascular, neither does the polypus so readily bleed. Again, we occasionally find malignant disease establish itself at the orifice of the urethra, and this may exist without malignant disease of the uterus and vagina; two examples of this disease may be seen amongst the out-door patients: here also there is difficulty in micturition, pain and scalding during the passage of the urine, there is occasional bleeding, and conjoined with this, or in its absence, a mucous discharge. Ocular examination will, however, readily detect the one from the other; in malignant disease there will be found a hard and lobulated tumour, or a cluster of lobulated tumours, involving the urethra to a greater or less degree, diminishing its capacity, and almost closing its external opening. And if, in addition to this, malignant disease of the vagina be present, it will greatly assist our diagnosis. Frequently, too, the inguinal glands are enlarged, and the aspect of the patient is characteristic of malignant cachexy. There is another disease to which this part of the female urinary apparatus is liable, viz. thickening of the cellular membrane around the urethra, with an enlarged and varicose state of the vessels, in which there is a dilated state of the blood-vessels with an hypertrophied condition of the cellular membrane; the urethra, for an inch or more behind the meatus, is frequently so dilated as to hold some few drops of urine, which may be pressed from it, and which create continued irritation. This state of parts is accompanied by constant uneasiness; there may be pain in sexual intercourse, although, for the most part, females labouring under this malady have their sexual desires exalted; the uneasiness is increased in the erect posture; there is frequent inclination to evacuate the bladder both by night and by day, a small quantity of urine flowing at a time, and the patient generally feels as if there were more fluid to pass. There is also a slight mucous discharge.

The finger passed into the vagina feels the urethra to be swollen and spongy, and if the disease have lasted for some time, there will be a part from which a few drops of urine may be pressed. When inspected, the part will be found of a dark red colour, and in some cases there is tenderness. You cannot readily mistake verrucous tumours growing from the vestibulum for this disease; the former are insensible, their colour resembles that of the part from which they grow, their number varies, they may be solitary, in other instances there are many, but in all cases there is a mucous discharge.

Let me advise you, in every case in which you are consulted, where the patient makes complaint of symptoms similar to those detailed in this woman's history, not to prescribe or give an opinion without the privilege of a tactile and visual examination. A neglect of these I have known lead the practitioner to commit sad mistakes, and involve himself in great disgrace. One instance I remember to have seen and treated, where the opinion given was, that there was calculus in the bladder. The patient as well as her friends were very properly alarmed, further advice was

recommended; the case was investigated, no calculus was present, the sole disease being a vascular growth; this was removed, and the patient has had no return. I have, on several occasions, seen cases in which carcinoma uteri was suspected from the pain in micturition, the central pains attacking the pelvis and stretching to the back, hips, and down the thighs, and even this disease in some has been declared by the medical attendant to exist, although he had not availed himself of an internal or visual examination. Be on your guard, therefore; in no case give a hasty or rash opinion; take care not to judge by mere symptoms, without employing the several means of physical diagnosis which in a previous lecture I have detailed.

Let me now request your attention to the treatment employed in this case; the neck of the tumour was grasped by a pair of forceps, and by means of a pair of scissors, the mucous membrane of the urethra, involved with the tumour itself, was removed. To effect this the patient should be held firmly, for, if she move, the structure of the growth is so slender that the tumour will tear away; the forceps employed should be broad, not the common artery forceps, for they will lacerate, and not hold firmly. The excision of these growths is frequently accompanied by a pretty copious bleeding; but it is rarely necessary to tie any vessel, a compress applied to the part for a time usually arrests the hemorrhage; this, however, should be looked to, especially if the patient call at your house, and has any distance to go after the operation; some arg. nit. was applied freely to the part from which the tumour was removed. After the slough separated, the wound looked healthy; there was no pain in passing the urine, which flowed in a full stream for some days. On the 7th the granulations were sprouting; I then directed the clerk carefully to touch the part with arg. nit. dissolved in nit. acid; this I have found to be more potent, and I think less painful (if I may judge from the expressions of the patients) than the arg. nit.; its effect has been good, and our patient will soon leave the hospital. In those cases where the tumour is of the form of a cherry or a mulberry, I find the better plan is to tie a piece of dentist's silk waxed around the stalk, and snip off the tumour below; the silk should not be too thin, or it will cut through, neither should it be tied too tightly, for the same reason. When the ligature comes away, the stalk must be destroyed in the same way as in the case related; if the mucous membrane itself and the submucous tissue be not destroyed, the vascular tumour will most certainly reappear. The most troublesome forms of this complaint we have to treat, are those in which the tumour not only peeps through the meatus, but runs along the urethra, and, in some instances, passes into the cavity of the bladder; in such the symptoms of irritation are intense, the stream of urine is as fine as a hair, and the suffering patient attempts to pass her water every three or five minutes. If the disease go on unrelieved, she wastes, becomes dispirited, dyspeptic, and may at last die worn out by her long-continued and aggravated sufferings. In such cases we cannot remove by scissors or knife the vascular growth within the urethra; the first thing to be done, therefore, is to pass a small sound or catheter to establish a canal for the passage of the urine. However painful this may be, and agonizing it most certainly is, it must be done; some arg. nit. must then be passed along the track of the urethra, and by its agency the vascular

growth must be destroyed; the sound or catheter must be passed every day, or every second day, according to circumstances, and the arg. nit. repeated as soon as the slough occasioned by its use has separated; it is as well to let the patient keep the sound or bougie in the bladder for half an hour after the application of the caustic.

This is certainly the most difficult form of the tumour to treat, and unless we succeed in effectually destroying the structure from which the tumour proceeds, we shall most certainly have it reappear. While this treatment is had recourse to, the patient must be closely watched, for I have seen cystitis occasioned more than once by the caustic applied in the manner I have recommended; but this will depend on the constitution and susceptibility of the patient, as well as upon the state of the mucous membrane of the bladder itself.

Various other modes of treatment have been recommended—the application of the Tr. Iodinæ, C. Pulv. Sabinæ, Pulv. Alum., &c. All I have tried; with some I have occasionally succeeded, with all I have many times failed: the plan I adopted in this woman's case is the one I believe to be, in the majority of cases, the most successful.

When the cause of the continued irritation was removed, the patient's health and spirits quickly recovered, and at the present time she looks remarkably well and lively for a woman of sixty-four.

## Art. 50.—*Cure of Spina Bifida.* By Dr. Latil de Thimecour.

(*Condensed from the Gazette Médicale*, Nov. 25, 1845.)

J. M. Chaillon, a female infant, healthy in other respects, was born with a tumour the size of a small apple above the buttocks; it was at first soft and slightly tender, was soon filled with a transparent fluid, and two days after birth it was ascertained that it could not move its left leg, and that the foot of the same side was turned backwards, the heel being drawn up towards the tibia, and the toes folded into the sole of the foot (varus equinus), the leg being extended on the thigh, and immobile.

The tumour rapidly increased. It was mobile at its edges, hanging sometimes to the right, sometimes to the left, according to the position of the infant, and cries were occasioned whenever it was moved or compressed. Although the functions of the child were regularly performed, at the expiration of two months it had become much emaciated, and its expression indicated manifest suffering.

When first examined by Dr. Latil de Thimécour, it was the size of a fœtal head, situated at the point of connexion between the last lumbar vertebra and the sacrum, hanging to the vertebral column by a thick pedicle, flattened longitudinally, and covered by skin and cellular tissue. Pressing the finger on the pedicle an aperture was entered, bounded on each side by an osseous projection; but during the exploration the child cried violently, and had convulsive motions with paroxysms of suffocation. The skin terminated insensibly near the base of the tumour, the remaining part of the latter being covered by a fine transparent membrane, analogous to the tissue of the bladder, striated with folds apparently fibrous, and with vessels easily recognized by their colour. The

pouch itself was filled with a light citron-coloured transparent fluid, and was so much distended as to appear to be on the point of bursting.

Two small very hard rods of wood were procured, about three millimeters in diameter and ten centimeters long; each of these rods were pierced at both extremities by three holes, placed at equal distances, in such a manner as respects each other as to permit of the passage of a thread like a stay-lace. The tumour was compressed between these two rods, pressed at first into simple contact; it was then evacuated with a trocar, and whilst the liquid run out, the nervous structures, which were disposed to float in the liquid, were kept back by gentle pressure, and the ends were pressed together so as to bring the serous membranes into the most perfect contact at the base of the pedicle. The compression was exercised as strongly as possible at the point of communication between the cavity of the vertebral column and that of the tumour; the latter was opened with a bistoury, and left empty and flaccid, external to this species of ligature.

The rods were then applied close to the vertebral column, closing the aperture and compressing the base of the tumour, which soon became livid, and the patient, who did not appear to suffer much during the operation, since it gave only an occasional cry, passed the remainder of the day without convulsions, vomiting, or any other accident. It took the breast as usual, and did not appear particularly fatigued.

On the following day the tumour was livid, but the opening had closed, and the liquid had accumulated again. The constriction of the rods was increased. On the second day the tumour was black; it had regained its original volume; it was open its whole length, being thus divided into two folds, and these were turned back upon the respective rods, the constriction being at the same time increased at the base of the tumour. In four days the parietes of the tumour were completely mortified, and although slight fever occurred on the seventh day, the child was remarkably well; the mortified parts having been incised, the skin was deeply ulcerated around the rods; the pedicle remaining between them appeared to be quite dry and of a black colour. It was determined to remove the compressive force cautiously; but the inferior lace was scarcely cut and the two extremities of the instrument slightly separated, than a jet of liquid escaped from the centre of the pedicle with considerable force. The rods were immediately brought together, and the constriction maintained with fresh laces. Thus, after eight days, the communication between the spinal canal and the external pouch was not closed, and the adhesion between the serous surfaces was not complete. To promote the occlusion it was at first proposed to pass a suture, but on reflection it was deemed more prudent to leave matters to nature, merely keeping up the most perfect compression with the rods of wood.

On the 11th day the rods were moveable, the skin deeply ulcerated around them, but at the bottom of the ulceration there was a large flabby membranous pedicle; the constriction was maintained, and the rods rendered immovable by a bandage. On the following day the rods held no more than the membranous pedicle, the remainder of the internal parietes of the tumour, and doubtless formed by a hernia of the spinal membranes through the vertebral aperture. This pedicle was tied and cut off below, so as to detach the rods and the gangrenous parts between them. A large

oblong wound remained, of a healthy appearance, which was dressed with charpie and cerate. On the sixth day after this the wound was diminished, and the ligature fell off. On the twenty-fourth day the wound was reduced to the size of a franc-piece, with healthy granulations, and the child was in perfect health. There was no trace remaining of the tumour. Partial motion was observed in the paralysed limb. Five days after this the wound was completely healed.

Six months afterwards the child was carefully examined. It was as healthy and strong as other infants of the same age; there were no remains of the tumour over the vertebral column; a cicatrix was scarcely apparent on a level with the last lumbar vertebra and the base of the sacrum, below which a depression could be felt which was not very deep, the finger being soon stopped by a resistance, as if cartilaginous, probably from a commencement of ossification in the vertebral aperture.

The lower limbs were nearly of the same size and strength, except that the flesh felt softer and more flaccid in the left than in the right limb, in which the foot was always turned, as at first described. But the foot could be straightened without much force, which was not the case before the operation. The leg could be flexed, after which it extended itself; but flexion could not be produced at will. The thigh was moveable in every direction, and there was a marked tendency to cross it upon that of the opposite side. The cure was thus complete, and it is remarkable that during the progress of the case, there were neither convulsions nor fever of any consequence, nor syncope, nor any other untoward circumstance. [The principle of treatment is the same as that reported in our Second Volume, p. 280-2.]

## Art. 51.—*Ligature of the Posterior Tibial Artery for a Wound.*

By John Charles Hall, M.D.

(*Condensed from the London Medical Gazette*, Feb. 1846.)

April 16th, 1841.—I was requested to visit, with all possible haste, Mr. N——, a gentleman upwards of 60, who had been thrown from his horse, and was bleeding to death from a wound of the leg. The case was seen in less than half an hour after the infliction of the injury. The patient's clothes were saturated with blood, and a considerable quantity had flowed into his shoe. He was cold and faint, with a feeble pulse. A little brandy and water was immediately given, and he was placed in bed. A wound of about an inch in length was seen in the calf, a little below the junction of the upper with the middle third, and from which the blood was now again beginning to flow freely. A tourniquet was applied to the femoral artery, which retarded the hemorrhage, but did not altogether check it. The nature of the injury was at once evident, and the necessary steps were immediately taken for securing the posterior tibial artery. Introducing a long narrow-bladed knife into the wound, the muscles were carefully divided above and below the seat of injury, down to the deep fascia which was now clearly seen on sponging away the coagulated blood, and into which a small opening had been made. The manner in which the injury had been sustained was doubtful. At the time the old gentleman was riding a horse that plunged violently, and

threw him with great force to the ground; his foot was fixed in the stirrup, and he was dragged some distance. He says, when his foot got at liberty the horse kicked him, with considerable violence, on the leg; he had neither trousers nor gaiters upon his leg, which was only protected by a thick stocking. On looking at the shoes of the horse, we found he had been shod behind with what are called "caulkings," one of which Mr. N. supposed had been driven into his leg.

Enlarging the opening in the fascia, after removing a good deal of coagulated blood, the artery was found, and secured by passing a ligature above and below the wound, and dividing the vessel between them. The wound in the muscles was then brought together, and a bandage passed from the toes to the upper part of the thigh; the patient appeared to experience much relief from this, which in a great measure checked the spasm and quivering of the muscles, which were somewhat severe during and immediately after the operation. A large dose of liq. opii. sed. was given. No constitutional disturbance worthy of notice took place. Both ligatures came away on the twelfth day after the operation. I saw Mr. N. a few days ago; he was on horseback, and told me he could not discover that the leg on which the injury was sustained was worse than the other, and that it did its work very well.

## Art. 52.—*New Method of treating Fractured Ribs.* By Alexander J. Hannay, m.d., Surgeon to the Glasgow Royal Infirmary.

(*The London Medical Gazette*, Nov. 1845, p. 1232.)

For many years I have made use of adhesive straps as the restraining girdle around the chest, and with happy effect. The following is the mode of applying them:—I cut the most adhesive and best made diachylon plaster I can procure into strips four inches broad, and of sufficient length to surround the thorax, with a tail, which, after meeting around the cavity, will reach fully a foot beyond the point of meeting. I place the patient in a warm apartment, and close to a good warm fire, so that the plaster may be readily and thoroughly warmed, and kept perfectly soft during the application of it. Having ascertained the seat of the fracture, and having the plaster thoroughly softened, I place the middle (the sailor would call it the bight) of the strap on the fractured points. An assistant and myself each pull the ends of the strap very tightly, whilst another assistant supports the patient, by preventing him from yielding in the direction we are drawing the plaster. The patient also empties his chest by expiration, as forcibly as he can, at which conjuncture the strap is brought in contact with, and made to adhere to the chest, encircling it tightly all round; the ends are crossed over each other. This first strap, or girdle, is followed by a succession of them, laid partly over each other, or imbricated; each strap should cover a third of the width of the one next it; they are applied in the same manner as the first, which, in the end (from the straps reaching up to the axilla, and down to the lower part of the chest, compressing that cavity powerfully) becomes slack, and another one is required to put round over it. I then, to secure the firm adhesion of this cuirass of plaster at every point, smooth it over with an Italian iron sufficiently, but moderately, heated.

I have now adopted this practice for many years in private, and have taught it to the pupils of the Glasgow Royal Infirmary, some of whom, with myself, can bear testimony to its facility of application, and its perfect efficiency. It is immediate in its relief, and does not generally slacken till its support is no longer needed. I need hardly add, that it enjoys its advantages from the adhesion everywhere diffusing over the whole surface of the chest a most equable pressure; whereas the sliding bandage usually employed comes to press most on the prominent parts, and is therefore inefficient. Besides, the stiffness of the strap affords a certain and very suitable amount of support, which the bandages hitherto employed to encircle the chest do not afford. Indeed, a piece of plaster is often put on the surface over the broken point below the cinctures in ordinary use in these cases. I have just recalled to mind the circumstance which led to my adoption of this method of treating fractured ribs. I was labouring under the most agonizing neuralgic pain of the thoracic parietes during my convalescence from continued fever. Many kind professional friends who visited me suggested divers remedies, but all in vain; the late Dr. Abercrombie at length suggested a broad strap of plaster to be wrapped tightly round the chest. It proved instantaneously and permanently effectual, and pointed out to me the value of the strap in all cases requiring a firm girdle round the chest, to check, or altogether prevent its respiratory movements. I have employed it also in cases similar to my own since, with like success.

### Art. 53.—*Axillary Aneurism cured by Compression at the Distal Side.*

By Dr. Middleton Goldsmith, Castleton, Vermont.

(*Condensed from the Boston Medical and Surgical Journal*, Dec 3, 1845, p. 357.)

The aneurism was produced by an accident, and in the opinion of Dr. Goldsmith was of the false variety. The tumour embraced very nearly the whole length of the vessel from the termination of the subclavian to the beginning of the brachial, was somewhat irregular in shape, and was observable by its lower extremity just below the tendon of the pectoral muscle. The circulation was free but not strong in the brachial artery.

"As the situation of the tumour was such," Dr. Goldsmith remarked, "that I could apply a compress upon the artery, at a point between which and the tumour there was no branch given off, I determined to try the effect of permanent compression. For this purpose I used the common screw tourniquet, with three pads, to make the pressure on certain points, leaving the rest of the arm uncompressed. I put him upon the use of antimony and digitalis, and with these drugs I was able most of the time to keep his pulse reduced from the natural standard, 74, to between 45 and 55. I kept up the compression during the term of seven weeks, and for four, kept him under the influence of antimony and digitalis."

The pulsation in the tumour grew more feeble from the first application, till it disappeared on the fifteenth day. The tumour diminished in size, until it was about as large as a pigeon's egg, when he was discharged. This was about the size of the tumour when the patient was presented to the society. The tumour felt dense and membranous, and the circu-

lation is restored, though feeble, in the brachial artery. This probably is through the medium of the recurrent branches at the elbow.

Dr. Allen, who reports the case, remarks that the successful event in this instance ought to be regarded as one of the most brilliant achievments of modern surgery.

[The sum of danger avoided can be estimated by reference to Dr. Norris's table, showing the mortality from tying the subclavian artery. (Abstract, vol ii, p. 267.) The cure was effected by the combination of medication and pressure, and it is believed that Dr. Goldsmith's plan is unprecedented, for, although Velpeau has stated, it is by no means certain, that by compressing an artery on the distal side, where there is no important branch between the cardiac extremity and the tumour, we shall not succeed in suspending the circulation in an aneurism, by the formation of a coagulum and obliteration of the artery, and thereby obtain the cure, Dr. Goldsmith has shown this to be not only *possible*, but *safe*, *easy*, and *practicable*.]

## Art. 54.—*Lithotomy.* By Dr. Bresciani de Borsa, Verona.

(*Medico-Chirurgical Review*, April, 1846, p. 360, from '*Saggi di Chirurgia Teorico-Pratica.*)

Dr. de Borsa's operation is a modification of that of which Signor Manzoni, of Verona, published an account in 1808, and the author declares that of 100 cases operated upon by that practitioner and himself, only one has died; and death in this instance took place from causes irrespective of the operation. The steps of the operation are detailed as follows:

Having placed the patient in the usual position, (it is much preferable to retain him in this by means of assistants than by ligatures, for the mere ceremony of adjusting these, causes a great dread to the patient, which may alone suffice to induce a low and fatal form of fever,) introduced the catheter, and made a sufficiently large external incision, I open, with a small lancet-pointed double-edged strong scalpel, the whole of the membranous portion of the urethra, so as to expose the instrument to the extent of about ten lines, in doing which it may in some cases easily happen that the apex of the prostate is also cut, although in the case in which the patient died it was found entire. I now take hold of the handle of the catheter, and passing my left fore-finger into the wound, feel the groove exposed; and as others would pass some form of gorget through the prostatic portion of the urethra and neck of the bladder, I only introduce my finger into the bladder, being certain it never can make a false passage, since I keep it in contact with the metallic instrument. I take care nevertheless not to pass my finger along the groove, because I should then thrust it against the internal or posterior angle of the wound, and then against the great bulk of the prostate. Scarcely do I touch the groove before, instead of following it, I pass my finger upon the right side of the staff, (as regards the patient,) and carry it quietly and without any obstacle into the bladder. One of the advantages of this modification is that it enables me, in most cases, to come at once in contact with the stone.

I then remove the staff, still, however, retaining my finger within

the track of the incision, and gently moving it about in a semi-rotatory manner, effect a much greater dilatation of the prostatic urethra and neck of the bladder. Next I pass in the forceps behind my finger, and seize the stone. It has to pass along a track of only from twelve to fifteen lines, or even less, since the inverse cone formed by the forceps approximates the neck of the bladder and urethral aperture, for which reason the space is shorter and more easily dilated. I remove the stone with two, or, at most, three semi-rotations, performed with circumspection and care along an axis, which, commencing at the centre of the bladder, should pass through its neck, and following the centre of the prostatic urethra, terminate in the centre of the perineal aperture. I am in general not more than a minute after opening into the urethra before I have extracted the stone, and the operation has always succeeded in my hands. Safety, simplicity, and celerity, I have already said, are desiderata of every operative process, and I am in a condition to prove that they attach to this one recommended by me. All I employ are simply a bistoury and the forceps—*simplicity*, surely, in comparison with the multiplicity of complicated instruments which has been recommended in the various and numerous modes of performing *cystotomia*. By passing my finger along the staff, I secure that *safety* which is not usually a characteristic of operations for stone. It is related that even the celebrated Scarpa passed the gorget, which was looked upon as the palladium of his fame, in between the bladder and the rectum. The same thing has occurred to many otherwise skilful operators. . . . . I am certain of not injuring either the pudic artery, the prostatic venous plexus (so frequently in a varicose condition in the aged), the body of the bladder, or the rectum. Farther, by the preservation of the whole, or nearly the whole, of the prostatico-vesical canal, inflammations between the rectum and bladder are avoided, inasmuch as urinary infiltration is prevented, in consequence of the prostate not being divided. . . . . The *rapidity* of the operation is shown by the fact, that instantly after I have opened the urethra I have the stone in my hand; and any one who has even once performed this operation will bear witness to my assertion. I may observe that it seems almost impossible that so many operators, at all periods, have written so much, and cudgelled their brains to invent new operative procedures for lithotomy by deep prostatico-cystic incisions, while, with a simple *urethrotomy*, the desired end may be obtained, as I can prove by so many cases.

### Art. 55.—*Radical Cure of Hernia by "Invagination," &c.*

By John Crouch Christophers, Esq. m.r.c.s. London.

(*Lancet*, Feb. 21, 1846, p. 216.)

The skin is thrust in by the finger, which it covers like a cap, pushes the peritoneum before it, and thus removes it some distance from the walls of the canal. Then a curved needle (with or without a handle) is introduced, and passed along the palmar surface of the finger in the "cul-de-sac" to its termination behind the ring, when, by depressing the handle, the point of the needle is directed from behind forwards, traversing the invaginated skin and the anterior wall of the canal. It follows,

therefore, that the needle does not pierce the skin of the "cul-de-sac" from before backwards, nor from below upwards; but, on the contrary, from behind forwards, because its point is thrust in that direction by depressing the handle, while those parts the finger pushes before it, beyond the prolongation, are necessarily removed from its reach. So far the operation does not appear to be dangerous, nor is it extremely painful, yet it holds out reasonable hopes of success. When it is considered that this operation is to remedy a disease which is a constant source of inconvenience, pain, and peril—ever exacting incessant precaution, and oftentimes penible restraint, and, despite them both, not unfrequently leading to fatal results—when its misery is doubly felt by those labouring in the lower ranks of life, and therefore in the worst position to guard against its consequences—it must be admitted to be one of the most afflicting maladies human nature is subject to, whether we regard its frequency or the danger attending it; therefore any operation, based on reasoning, and borne out by fact, and thereby holding out a fair chance of radical cure, must, I think, be hailed as a great boon by the large number suffering its pains and penalties.

The object in employing sutures is twofold:

1st. To maintain the invaginated skin in position till adhesion secures it.

2dly. To set up that amount of action between the internal surface of the invaginated skin and the walls of the canal to cause them to adhere. Both these offices, I conceive, can be accomplished without their aid. It is true the suture efficiently effects both; but in so doing I fear it entails an amount of risk not quite warrantable. In fact, it does too much; for though we rely on the inflammation for the cure, yet we want to confine it to those parts only that we wish to adhere; in using the suture, the whole of its tissue within its grasp must suffer more or less from restriction, arrange it as you may, and a considerable degree of constriction must be used too, or the parts would not remain in the position it is required to confine them.

In order, then, to supersede the use of sutures two things are necessary—1st, the power of keeping the invaginated skin in position till adhesion is perfected; 2dly, the means of producing sufficient action to cause the internal surface of the invaginated skin to adhere to the walls of the canal. The means by which I purpose to accomplish this may be stated in a few words. I follow M. Gerdy through the different stages of his ingenious operation to the point where we differ.

1st. With the finger thrust the skin into a canal of a reduced hernia.

2dly. Take a curved needle, pass it sideways along the palmar aspect of the finger, till it reach the bottom of the "invagination;" turn its point forwards, depressing the other end, and cause it to come out, traversing the skin and the anterior wall of the inguinal canal. Pass another needle in the same way a few lines distant from the first. From this, I conceive, there will result an amount of action, provided the contact be maintained sufficient to produce the adhesion required, without using the ligature; and as it is fair to argue from analogy, I would instance the practice of attaching loose cartilages in joints to a given spot, by puncture, to bear me out in this view. Yet, remove the finger, and the parts, no longer held in contact, resume their natural situation, and

cannot adhere in the position required. To obviate this, I have devised an instrument capable of adjusting itself to the size of the invaginated cavity it is destined to fill, and may be well represented by the double finger of a glove, composed of a material capable of containing air, at the same time that it will resist heat and the animal secretions; in fact, a short sac, with air or fluid contained within its walls, the centre being open, like a small finger-stall, for the purpose of admitting a plug, to give it firmness and support. This plug is attached to a wooden disc, on which five small knobs are fixed, giving attachment to the four tongues of a belt that goes round the back and hips, and to a strap that passes under the buttock, to be attached to a button fixed in the belt behind. Any degree of pressure, tightness, or support may be obtained, as the tongues or straps are regulated for any period, without the possibility of slackening or shifting position; and as this is accomplished by a means that does not admit of undue pressure, no pain or inconvenience can arise from that cause, be it necessary to wear the instrument as long as it may.

By this means the invaginated skin may be maintained in exact contact with the parietes of the inguinal canal for any period, and, I conceive, without any risk or annoyance. I think, moreover, that the action set up by passing the needles would be sufficient, after adhesion takes place, to hold the invagination in position without further interference. I do not think it impossible that this instrument, if worn for a lengthened period, would alone effect a cure, as it might induce that amount of action between the skin and the walls of the canal as to cause them to adhere. I much question the necessity of making the needles penetrate the parts so extensively and so deeply as M. Gerdy directs, in operating with sutures. These punctures, five or six in number, might, perhaps, be sufficient to produce the amount of action required, the parts being held in intimate contact by the means described. When adhesion has taken place, the instrument may be dispensed with, and the further directions of M. Gerdy carried out or not, as the case may seem to demand. The instrument I have described is, I am told, easily made, by no means costly, very simple, is very readily applied, and can be regulated at will by the wearer. I do not wish to attach any undue importance to this modification; but I do wish to attach credit and importance to an operation characterized by so high an aim, and based on principles at once sound, simple, and scientific.

ART. 56.—*Treatment of Wounds of the Arteries of the Superior Extremity by compression, and forcible flexion of the fore-arm.* By M. J. FLEURY.

(*Gazette Médicale de Montpellier. Condensed from the Journal de Chirurgie*, Jan. 1846, p. 20.)

When the fore-arm is strongly flexed, the pulse, as remarked by Bichat, ceases at the wrist, and Malgaigne, availing himself of this fact, tested the effects of a forced flexion of the arm in a wound of the brachial artery in 1832; he was at that time satisfied also that a strong flexion of the knee would equally arrest the pulsations in the artery of the foot, and consequently in all the arteries of the leg.

M. Fleury has made a successful application of these data in two cases, the one a complete transverse section of the brachial artery at the fold of the arm, the other a complete section of the radial artery.

A man named Nicolini met with a severe injury from the bursting of a cannon. The thumb of the right hand was stretched out (allongé) and in part buried in a deep wound, about three centimeters wide, in the anterior and inferior part of the left arm in an oblique direction downwards and outwards. Compression in the wound itself prevented the spouting of the blood, which, however, continued to flow in torrents. The moment the compression was removed, pure arterial blood escaped in a continuous and jerking stream. The inspection of the wound, its situation, direction, depth, with the colour and jerking of the blood, left no doubt as to the brachial artery being completely cut through transversely a little above its division into the radial and cubital arteries. The simple indication was to tie the two ends of the artery, but M. Fleury was prevented doing this by the arrival of several other wounded patients, and the operation was deferred, the wound being dressed as follows :

The brachial artery was compressed about its middle, the fore-arm flexed to 45°, bringing together the edges of the solution of continuity, two diachylon bandages maintained them together, a large pledget of cerate placed transversely covered the wound, then two tents of charpie and two tight bandages fixed the whole.

A roller was applied from the fingers to the elbow, the fore-arm was then flexed as tightly as possible on the arm, the bandage was continued by figure of eight turns which extended to the middle of the arm. The compression being complete, the fore-arm strongly flexed on the arm, was immoveable. Nicolini had received also a dangerous wound in the abdomen with extrusion of the intestines.

Examined some time afterwards, the bandages were scarcely tinged by a drop of blood, the compression was supportable and no inconvenience was observed respecting the apparatus. An attack of peritonitis supervened, from which he was soon convalescent. After the expiration of three days, the patient complaining that he suffered much from the arm being too tight, the bandages were cut behind, care being taken as to the position of the limb. It was bathed with cold water, and all the dressings which did not adhere to the wound were removed. New dressings were substituted, and the bandage replaced by one not quite so tight. On the seventh day the bandage was soaked, the charpie, imbued with pus of a good character, fell off, and the wound was seen almost with a complete cicatrix. The blood had resumed its course by the collateral vessels, the pulse was perceptible, but smaller than in the right arm, and the patient perfectly recovered.

In the second case a man received a transverse cut to the bone in the right hand, with a china plate. The blood gushed out instantly. The radial artery was cut completely through. The artery was compressed and the limb washed ; the edges of the solution of continuity were brought together by flexing the hand on the wrist, two small agglutinative bandages being applied. The wound was covered transversely with a pledget, and with dry charpie in large folds. A rounded form was given to the wrist by the application of graduated compresses dipped in cold water, and applied to the dorsal and palmar surfaces of the wrist and fore-arm ; these were sustained by a long damp tight bandage. A roller was then applied, commencing at the fingers, and having reached the elbow, the fore-arm was flexed as tight as possible upon the arm, and the remainder of the band-

age was employed in figure of eight turns, which rendered the fore-arm fixed and immobile. The whole of the dressing was bathed in cold water and the limb was placed in a scarf. The patient recovered without any untoward circumstance.

M. Fleury, after making several remarks, arrives at the following conclusions:

1. Forced flexion of the fore-arm upon the arm, aided by a compressing bandage well applied, and by the limb being rendered immoveable for a sufficient length of time, will suffice for the radical cure of any transverse and complete section of the inferior parts of the humeral artery, and of its terminal branches. By analogy, as much may be said respecting the terminal branches of the popliteal artery, since the forced flexion of the leg on the thigh suspends or relaxes the course of the arterial blood in the leg and foot.

2. Every incomplete division of the arteries may be cured in the same manner, but the chances of success would be less than when the vessel is completely divided. Accordingly, in many cases it might be necessary to imitate the practice of our predecessors, by completing the section of the vessel injured below the bend of the arm or the hand.

3. Any aneurism whatever of the arteries mentioned is curable by the same means. The ligature of the arteries therefore should be limited to certain rare cases, as an anchylosis, or fracture, or some other disease, which would prevent the forced flexion of the fore-arm or of the leg.

4. Lastly, these two cases prove in a decided manner that one can and ought to dispense in certain cases, with tying an open artery in a recent wound.

### Art. 57.—*Rigid Contraction of the Lower Jaw, successfully treated.*

By R. W. Tamplin, F.R.C.S.E.

(*On the Nature and Treatment of Deformities*, p. 250.)

Some time since I was consulted by a patient, aged 11 years, whose mouth was, and had been for two years rigidly closed. Upon introducing my finger in the angle of the mouth, a dense indurated cicatrix was found to exist on either side, which effectually prevented the patient from opening his mouth in the slightest degree. His mother stated that for the period mentioned he had lived by suction only. Many surgeons had been consulted, but all had given an unfavorable opinion. I determined to divide the cicatrices by a puncture externally, which was done in the following manner: The patient was laid on a table, the head being supported with a pillow, an assistant holding the head. I introduced a small scalpel perpendicularly upon the middle of the masseter muscle; then withdrew it, and inserted a long narrow blunt-pointed knife, carrying it down to the bone, depressing the handle so that I could pass it horizontally forwards, until I felt the point at the anterior edge of the cicatrix, to the outer side of the mucous membrane, which I was enabled to do by keeping the finger of my left hand within the angle of the mouth. I then turned the sharp edge towards it, and gradually divided the band transversely. By this proceeding the mucous membrane of the mouth was left uninjured, the cicatrix alone being divided; so that there was no possibility of hemorrhage. Pledgets of lint were applied over the point

of puncture, as well as over the line of incision, and secured with strapping and bandage. Scarcely any pain followed the operation; and although only one cicatrix was divided, the boy could open his mouth to the extent of about the eighth of an inch.

Four days afterwards the puncture was healed, when I divided the cicatrix on the opposite side in a similar manner, and with a similarly satisfactory result. At the end of four days following the last operation, I applied an instrument made to fit the teeth of the upper jaw, which acted as a fulcrum, and with small narrow blunt steel hooks, which I introduced over the teeth of the lower jaw, and afterwards attached to the instrument by means of a screw, I gradually opened the mouth. During the night the instrument was removed, and small wedges of ivory were introduced, to which were attached pieces of tape, so that there should be no possibility of their getting into the mouth or throat. At the end of fourteen days, the boy was able to eat any kind of solid food, and from his mother's account, was eating the whole of the day. He rapidly improved in health and strength, and with a continuance of the use of the instrument, the cicatrices became gradually absorbed.

ART. 58.—*Varicocele radically treated by Removal of a Portion of Integument. Improvement on Sir Astley Cooper's Operation.* By JOHN WATSON, M.D., Surgeon to the New York Hospital.

(*The American Journal of the Medical Sciences*, Oct. 1845, p. 320.)

John Nichols, aged 22, was admitted into the New York Hospital with a varicose swelling on the left spermatic cord, of several years' duration, which had been a source of much annoyance to him. The testicle was somewhat soft, and the swelling, above and behind it, of an irregular shape, and as large, at least, as a hen's egg, was composed of a vast congeries of vessels, that were disposed to become still more distended by sudden exertion, as in lifting and straining, or in pursuing his usual employment. The swelling was at times attended with pain in the loins and dragging sensation along the cord; and it interfered so much with his occupation as to render him anxious to submit to an operation for relief.

For the cure of this disease the whole of the free integument of the scrotum that could be embraced, without much stretching, between the blades of a very long and slender pair of forceps, made to pass from over the affected cord, obliquely downwards to the lower part of the scrotum on the opposite side, was drawn outwards, and with one sweep of the bistoury effectually removed. The edges of the wound thus made, gaped so much as completely to expose both testicles, covered only by the tunica vaginalis. The external pudic artery, near the upper angle of the wound, had been divided, and it was the only vessel that required a ligature. Five or six interrupted sutures were necessary for bringing the edges of the wound into neat coaptation along the course of the cord, and so on below the testes. These sutures were further supported by strips of adhesive plaster.

The patient had little or no suffering from the wound. For several days he was confined to bed, and the parts were kept covered with water

dressings. In consequence of the tension of the integuments, several of the stitches ulcerated, and in a few days after the operation, the wound began to gape considerably in its middle. The parts were subsequently approximated with adhesive strips, and cicatrization progressed favorably. Before the end of the month the wound had healed, and the varicocele had entirely disappeared, without the least disposition to a recurrence.

The only unpleasant accident known to follow this mode of treatment is the supervention of erysipelas. This occurred in one case operated upon by Dr. Waters; and although it prevented union by the first intention, it did not, in any way, prevent the patient from finally experiencing all the advantages that were to be expected from the operation.

(*Vide Report, art. Varicocele.*)

ART. 59.—*New Method of Cure of certain Aneurisms by Galvano-puncture, without operation.* By J. E. PETREQUIN, Hôtel-Dieu de Lyon.

(*La Clinique de Montpellier, and condensed from the Encyclographie des Sciences Médicales,* Dec. 1845, p. 131.)

I. ANEURISMS OF SMALL VOLUME. Case 1.—*Traumatic Aneurism of the Temporal Artery. Cure at one sitting by galvano-puncture.* On the 4th of August, 1845, a lad, aged 19, fell from a second story and was carried insensible to the hospital. There was a severe ecchymosis over the left eye, and a fracture on the inferior maxilla on the median line. Towards the termination of the treatment, smallpox occurred, and ran through its stages regularly.

On the 9th of September, a traumatic aneurism was observed in the left temple, about the size of an almond, soft, and slightly sensible to the pressure of the fingers, and in the course of the temporal artery, pulsating isochronous with the pulse, visible through the skin, and ceasing under the influence of strong pressure below. On the 10th, galvano-puncture was employed. M. Pétrequin took two sharp-pointed needles and thrust them about two centimeters into the tumour, in such a manner as to cross each other at right angles. Their heads were then connected with the two poles of a galvanic pile. On contact an electric shock occurred, with a sharp pain, and these symptoms increased as the force of the galvanic current was increased: their intensity became very great by the 15th connexion with the poles, and the sitting was suspended. The duration of the operation properly so called, that is to say, of the real action of the galvano-puncture, was about ten or twelve minutes. The direction of the galvanic current was thrice changed during this time.

During the proceeding the pulsations were felt by several individuals present gradually to diminish, and at its termination they had completely ceased. A pulsating aneurism was replaced by a solid and indurated tumour.

On the 12th, the tumour no longer existed, and the temporal artery was found to be obliterated above its site. The core which succeeded to the tumour was gradually absorbed, and on the 20th of September the cure was complete.

II. ANEURISMS WHICH HAVE ATTAINED A CERTAIN SIZE. Case 2.—*Aneurism of the Ophthalmic Artery, and of the origin of its Branches, with*

*Exophthalmia.* A young man had a blow on the forehead, and about three months afterwards a tumour in the orbit was observed, having all the characters of an aneurism. The disease increased daily. The common carotid was tied, which at first appeared to be successful, but after the second week pulsation returned. Galvano-puncture was then resorted to; but this experiment was the first M. Pétrequin tried. It appeared to produce a degree of hardness, but, notwithstanding considerable care, the result was unsatisfactory.

Case 3. *Large Aneurism of the Brachial Artery consecutive to Bleeding.* The patient was an adult man. The tumour was rendered more compact at one sitting by the galvano-puncture. To promote complete coagulation, compression was applied temporarily to the arm, and the two needles were also left in the tumour; but the patient soon got tired of the compression, which had to be withdrawn. Simple acupuncture was insufficient, and he obstinately refused to submit to a second application of the galvanism, which might have succeeded.

M. Pétrequin remarks, in reference to this mode of treatment, that the first indication is to modify the circulation in the different vessels, without which the column of blood will carry away the clot as it is produced. This was not done in the first case, but it is indispensable where the artery is of a larger caliber; it might even be useful to intercept all the surrounding communications by compression. The blood should be kept as stagnant as possible in the sac. The clot forms round the needles only when they are in contact, and the phenomenon is more active when they are placed crosswise; on the sources of the clot should be multiplied when the aneurismal sac is very large, so that foci being formed at various points, they may ultimately merge into a common coagulum. After the operation ice may be applied, and the surrounding compression continued if possible. Experience has shown that the needle corresponding with the positive pole, to produce the greatest effect, should cross that which answers to the other pole, and that in large aneurismal sacs it is essential to multiply them, so as to produce at once a certain number of clots to form a framework for a common coagulum. There are two dangers to be avoided; in penetrating the tissues, the needles inflame the skin, irritate the nerves, and cause considerable pain; there is also a waste of the electricity, and hence inflammatory reaction. It is accordingly necessary to isolate them in the tissues, for which purpose a coat of varnish to the extent of one or two centimeters, according to the thickness of the soft parts, will answer. The strength of the electric current must be well managed; if too strong it tarnishes the metal, and the electric action soon languishes, and if too feeble it fails to coagulate the blood.

Mr. Benjamin Phillips claims the priority relative to the suggestion for the employment of galvano-puncture in the treatment of certain aneurismal tumours. On the 1st of January, 1832, this gentleman published a Memoir containing a series of experiments on the arteries, which were made in the course of the preceding year. In this Memoir he expresses himself as follows: "In the course of the experiments which have been described, I believe I have demonstrated that aneurisms are susceptible of cure by the action of galvanism." (*Revue Médicale*, Dec. 1845.)

## SECT. VI. RARE SURGICAL CASES.

### Art. 60.—*Case of Gunshot Wound, in which both Carotid Arteries were tied at an interval of four and a half days.*

By Dr. Ellis, of Grand Rapids, Michigan.

(*Condensed from the Dublin Medical Press*, Dec. 31, 1845, p. 429.)

Peltish Hill, aged twenty-one, received the contents of a rifle; the ball struck him near the centre and immediately above the spine of the scapula of the left side, passing out, after making a flesh wound of about two inches and a half, towards his neck, and after about the same space it entered his neck over the centre and posterior edge of the sterno-cleido-mastoid muscle, passing up through the centre of his tongue, and out of it to the right of the median line, struck the lateral incisor, cuspidatus, and bicuspidatus of the right side, knocked them out, with the alveolar process external to them; passed then through the upper lip, leaving a ragged opening through it. He lost but little blood. I brought the edges of the wound in his lip together with adhesive plaster and two or three sutures, and dressed the other wounds with cold applications. He was suffering but little pain, but an entire inability to swallow even liquids, which appeared to be owing to the injury and swelling of his tongue. Very little inflammation followed, which was doubtless owing to his being deprived of food and drink for about three days, on account of his inability to swallow. At the end of this time I introduced a flexible catheter into his œsophagus, and injected some water and nourishment; the next day he was able to swallow some liquids with difficulty, and soon recovered the power. The seventh day, during the night, hemorrhage from the wound in the tongue took place, but was readily subdued by compressing the carotid of the left side, and the orifices of the wound; upon removing the pressure no bleeding returned. The following night my patient lost considerable blood, and it was with difficulty restrained by pressure, which caused him considerable pain. We placed him upon a table, and I ligatured the left carotid artery, below the omo-hyoideus muscle; an operation attended with a good deal of difficulty, owing to the swollen state of the parts, the necessity of keeping up pressure, the necessity of keeping the mouth in a certain position to prevent his being choked by the blood, and the necessity of operating by candlelight. No unpleasant symptoms followed the tightening of the ligature, save a slight coldness at that side of his face, and an occasional throbbing pain beneath the sternum and in the direction of the ligatured vessel. Our patient appeared to be doing well until the eleventh day from the accident, when he had a return of hemorrhage, which was readily subdued by pressing upon the right carotid and the two orifices of the wound. There was a slight pulsation in the left temporal artery, the first I had felt since the application of the ligature. There was a return of the hemorrhage during the night and several times the next forenoon. He could not endure pressure upon the right carotid for any length of time, and we had to depend upon pressure upon the two orifices of the wound, which caused a good deal of pain. He was becoming very

restless under the pressure, and was very anxious to have us do something to relieve him. As we could not satisfy ourselves whether the hemorrhage was from the lingual of the right side, or from the unligatured end of the left carotid, together with the fact of there being a good deal of tumefaction under the angle of the jaw, so much as to prevent our feeling the corner of the os hyoides, we came to the conclusion to ligature the carotid. Accordingly I applied a ligature to the right carotid, four and a half days from the time we ligatured the left. The operation was attended with no difficulty. We passed two ligatures beneath the artery, and then tied one of them over a cork applied to the vessel. For convenience we had him in the sitting posture during the operation; when we tightened the ligature no disagreeable effects followed, no fainting, no bad feeling about the head, and all the perceptible change was a slight paleness, and a cessation of pulsation in both temporal arteries, and of the hemorrhage. In the course of the next hour his breathing increased in frequency from 95 to 140, but soon came down to 110. No difficulty of breathing. The first ligature was cut over the cork and removed, the other tied, and the wound dressed with sutures and adhesive plaster. For the first twenty-four hours our patient remained comfortable, but at the end of that time a hacking cough and difficulty of breathing ensued, with pain in his chest and heaviness; pulse 123, rather full for his reduced state. Took about twelve ounces of blood from his arm, and a few ounces by cupping, with but little if any *present* relief; gave a little of the tincture of belladonna for his cough. Four or five hours after, he complained of feeling worse, more difficulty of breathing, and pain; pulse about the same. I put a drop of the *tincture of aconite* into a glass of water, and gave him a teaspoonful. About four hours after he expressed himself as feeling better, breathing easier, pulse 110, and less full. I directed him a dose of the aconite whenever he felt a return of the difficulty of breathing, and the belladonna for his cough, and to abstain from all fluids from the first of his difficult breathing. Under the above treatment, the difficulty of breathing subsided, pulse came down in a few days to 80; neither of the wounds healed by first intention, but soon commenced discharging a healthy-looking pus. The ligature from the left carotid came away on the seventeenth day, and that from the right on the fourteenth from its application. The wound on the left side continued to discharge for several weeks, when the portion of the artery between the ligature and wound sloughed, and came away in three pieces at different times. The last portion, about one inch in length, I have now in my possession. The young man now enjoys comfortable health, and is attending to business. No perceptible pulsation can be felt in either temporal artery.

There are several reasons which make the above case very interesting. It shows the comparative safety with which both carotids may be ligatured, so far as the brain is concerned, and the danger of pulmonary congestion. It shows with what rapidity the anastomosing branches of the opposite vessel supply blood enough to give rise to pulsation in the temporal artery, and of course the danger of hemorrhage from the unligatured end of the artery, where it is not possible to ligature both ends of the wounded vessel.

## Art. 61.—*Extirpation of a Polypus from the Frontal Sinus.* By Dr. C. C. Wuth.

(*The British and Foreign Medical Review*, Jan. 1846, p. 136.)

[The reviewer remarks that the following is the only case on record of a polypus extirpated from the frontal sinus.]

A boy, aged ten years, was put under Dr. Wuth's care by his parents, with the remark, that for the disease of the eye, under which the child had already laboured nine years, they had sought the aid of many practitioners, who had used for it both internal and external remedies without relief. Their means were now exhausted, and the disease seemed to be incurable. During all this time the boy had suffered from severe pain in the head, and had enjoyed little or no rest, night or day. The left eye was so entirely pushed forwards out of the orbit, that it lay on a level with the back of the nose. Its lateral displacement projected it so much over the cheek-bone, that viewed in front, it hid the neighbouring side of the face. The displacement downwards brought the eye into a line with the point of the nose. For the last three years the eye had closed less and less completely, and the lids now covered it so imperfectly, that the cornea, with a circumference of sclerotica four lines broad, remained constantly exposed, whence a perpetual flow of tears. The strong orbicularis palpebrarum, whose annular fibres surrounded, in concentric lines, the protruded eye, seemed to press it still more out of the orbit. The extraordinary development of the muscle seemed to arise from its antagonistic action against the protruding swelling. A large, deep ulcer of the cornea threatened a speedy bursting and total disorganization of the eyeball. A convolution of the varicose veins of the conjunctiva covered the visible part of the sclerotica.

The regions of the frontal and nasal bones were greatly protruded; while the eyeball had gradually quitted its natural place, in proportion as the orbit had become contracted, by the pressure exercised upon its constituent bones. The left side of the nose formed a flat surface along with the back of the nose, and a firm obstacle presented itself to the finger passed into the left nostril. From the stretching of the skin, the left eyebrow was separated widely from the right, and dragged downwards. The skin itself was thickened, and doughy to the touch, while at the outer-under part of the eyebrow was a small opening, from which, on pressing the surrounding region, a whitish mucous fluid welled out.

As to the exciting cause, all that could be said was, that nine years before, the child had a red-spotted eruption, with cough and severe headache (perhaps measles), and that the present disease had for several years been increasing, under constant pain in the head, and many sleepless nights. Although the boy was much emaciated, and had a livid countenance, he seemed to possess a good original constitution.

Dr. Wuth's diagnosis led him to a favorable prognosis. He gave it as his opinion that a large polypus occupied the frontal sinus, which he trusted he should be able to remove by an operation. To this he proceeded next day, by making first a vertical incision, two inches long, from the root of the nose upwards, through the soft parts, and then a horizontal one, also two inches long, close above the eyebrow. He next dissected off the triangular flap thus formed, so far as to permit the frontal sinus

to be trepanned. In the middle of the superciliary arch was a small hole in the bone, scarce a line in diameter, opening into the sinus, and explaining the source of the fluid already mentioned, which had kept the soft parts in an inflamed and fungous state. This state of the soft parts caused a considerable bleeding in the course of the two incisions. In consequence of the great dilation of the sinus, it was necessary to make two openings into it with a small trephine, whereupon an immense quantity of polypi protruded, being connected together like grapes, and covered with a milk-white fluid. Dr. Wuth removed the greater part of the polypi with cutting instruments. After washing away the slimy milk-white fluid, he remarked that the polypi internally were of a yellow colour and partly transparent, and that within each polypus there ran two or three vessels, giving off branches on all sides. The upper portion of the cavity contained mucous polypi, which felt partly soft, and yielded readily to pressure, but were partly firmer, and of cellular texture, so that out of the cells a white, slimy fluid could be pressed. In the middle of the cavity the morbid product became denser and more opaque; posteriorly and towards the parietes of the cavity it assumed a fibrous structure. The cavity terminated towards its inner and outer sides in small sinuses or cellular spaces, in which the polypi lay firmly imbedded.

Dr. Wuth next directed his attention to radically destroying the remainder of the disease attached to the parietes of the cavity and contained in its cellular spaces, selecting such means as were not likely to act injuriously on the very thin osseous partition separating the cavity from the brain, and which was felt to yield to gentle pressure with the finger. He felt with his finger, lightly applied, the pulsation of the brain, and was afraid lest so thin an osseous partition might yield to the movements of the brain, now that the counter-pressure was removed by emptying the cavity of its contents. He now bored through the osseous parts from the cavity of the nose to the frontal sinus, as the ethmoid cells, conchæ, &c., and introduced a silver canula, so that the fluid collected in the sinus might flow off unconfined. Further, to remove the stillicidium lachrymarum which had arisen from the compressed state of the nasal duct, he perforated the nasal bone from without inwards, so as to meet (if we understand him right) the artificial canal just mentioned, and here put in a second tube. After a time, being convinced that the tears had a free passage, he removed the tube from the artificially-formed nasal duct, and feeling assured of the healthy state of the frontal sinus, he removed also the canula, leaving the opening into the sinus to close.

The healing of the parts occupied twelve months, the frontal sinus being by that time considerably lessened in all directions, and the eye having partially returned into the orbit. The ulcer of the cornea cicatrised soon after the operation, leaving a leucoma, which during the succeeding years diminished considerably, so as to permit the sight to improve. From the first night after the operation he enjoyed sleep, such as he had not had for years. The first six weeks he spent chiefly in sleeping and eating, whereby his exhausted constitution was speedily restored. After this Dr. Wuth saw the lad twice a year, and each time found the disfigurement to be diminished.

With regard to the applications made to the parietes of the sinus, in order to restrain any new growth, Dr. Wuth was afraid to use lunar

caustic, or kali causticum, and employed laudanum, Goulard's extract, and creosote, pencilling the parietes with a mixture of equal parts of the two former, and then applying a salve, composed of an ounce of zinc ointment and ten drops of creosote, spread on lint.

From the above case Dr. Wuth draws the following physiological and pathological conclusions:

1. The possibility of the continuance of the power of vision under gradual traction and elongation of the optic nerve.
2. The enormous enlargement of which the frontal sinus is capable—equal in this case to the containing of three hen's eggs.
3. The return of this osseous cavity almost to its normal form.
4. The complete division of the supraorbital and frontal nerves did not in this case injure vision.
5. Pain is not a pathognomic sign of the malignant or benignant nature of a swelling—a fact illustrated also by cases of induration of the mammæ and other organs, which, by their spontaneous disappearance show their non-malignant nature.

## Art. 62.—*Case of Dislocation of the Spine.*

### In the Practice of Mr. Liston, of University College Hospital. Reported by W. H. Colborne, Esq.

(*The Provincial Medical and Surgical Journal*, Dec. 10th, 1845.)

Thomas Young, labourer, was admitted into this hospital, under Mr. Liston, October 27th, for an injury to the spine. The patient was about 22 or 23 years of age, stoutly made, of florid complexion, and general good health. He gives the following account of his accident:—On the 23d whilst standing on a high ladder, a sudden sensation of giddiness came over him, and losing his hold he fell to the ground. He was not rendered insensible in consequence, and though he says he felt much shaken, he was able to walk home soon afterwards. Next morning, on leaving his bedroom, being at the stair-head, he was again seized with vertigo, and having fallen to the bottom, was taken up insensible, and continued so for some time. On awaking from his stupor he found that the power of motion and sensation was lost in both of the lower extremities. A medical attendant was called in, who sent him into the hospital on the 27th.

*State on admission.*—There is a complete loss of sensation in all parts below the clavicles; the power of motion in the lower limbs is altogether gone; sensation is much impaired in the upper extremities, and though every movement can be performed by them, yet they are so much weakened as to be nearly powerless; no particular pain is complained of, but a general sense of uneasiness, and he says he feels stupified. Respiration is purely diaphragmatic, not the slightest motion of the ribs being perceptible, and articulation slow, and during expiration difficult. The bladder is distended, but he is unconscious of it; bowels have not been evacuated since the accident; heat of skin in the paralysed parts natural; no symptoms of febrile excitement; urine drawn off natural. A pill of castor-oil and creosote every four hours opened the bowels, and forty minims of tincture of henbane, with an equal quantity of fetid spirits of ammonia, were exhibited every six hours.

28th.—On tickling the soles of the feet, twitchings of the muscles of the legs are produced; penis distended, and a discharge resembling semen distils from the urethra.

29th.—Still the same; abdomen somewhat distended by flatus; retention of urine still continues.

30th.—This morning febrile excitement came on; the pulse rose in strength and frequency; the tongue rather foul; some intolerance of light, and increase of the sensation of general uneasiness. He was bled to twelve ounces, but continued to grow worse; the breathing became more difficult; and in the evening he died. The heart's action continued for five minutes after all respiratory movements had ceased, and in a few minutes after death the skin became lived and mottled.

*Sectio Cadaveris*, twenty hours after death. Though the body has been lying on the face, the posterior surface is much discoloured, especially about the neck and shoulders.

The sixth cervical vertebra was found to have been dislocated forwards, the fibro-cartilage being torn from the inferior surface, and the anterior and posterior common ligaments, and ligamenta subflava, were torn across; the tip of the right inferior articulating process was broken off; the tip of the right transverse process of the seventh vertebra was also fractured; the spinal cord was entire and uninjured, but was pressed upon the body of the seventh and the arches of the sixth cervical vertebra, and there was but a slight degree of effusion on its surface; the lungs, kidneys, and brain were engorged with blood, but their structure healthy; the ventricles of the brain contained a small quantity of bloody serum; the bladder was distended, and its mucous membrane pale and softened.

## Art. 63.—*Contraction of the Thoracic Portion of the Aorta to complete Closure.* By Professor Tiedemann, Heidelberg.

(*Edinburgh Medical and Surgical Journal*, Jan. 1846, p. 122.)

This took place in the person of an invalided soldier, 60 years of age, who, in September, 1828, had been admitted into the military hospital of Brunswick, on account of severe constriction in the chest, and died there after a few days.

This person was a soldier at the age of 17, and in the French revolutionary war had served one campaign in the Netherlands. During his period of service he was much addicted to the use of spirits, and he had suffered from rheumatism, gout, itch, and syphilis. In the year 1799 his regiment had, in the return through Westphalia, often to march through water, by which he was much chilled, but they nevertheless continued the march to Brunswick. Some days after his arrival there his feet swelled; then the abdomen, the arms, and the face; and general dropsy was established. As the patient was treated for four months without avail, he was discharged with a pension. He then came under the care of a veterinary surgeon, who, by means of strong purgative and diuretic agents, delivered him from the dropsy in the course of four weeks. After this time he worked as a day-labourer, or, as a pedlar, frequented the market. But he led a very irregular life, drank much brandy, and was often intoxicated, so that he became a pale emaciated

figure. By the persuasion of his wife and family he gave up the use of brandy, and after a temperate mode of life continued strong, healthy, and fit for labour. Hitherto he mentioned that he had not suffered from palpitation.

In the year 1823 this man began, without known cause, to complain of the chest. He had dry cough, was short breathed; could no longer run or walk; to ascend steps was to him difficult. In bed he lay mostly on the right side, because the constriction in the chest was aggravated by lying on the left side. These complaints, the commencement of which he could not accurately define, progressively increased. He now gradually lost his original vigour, and became inactive and unfit for labour. He nevertheless did not complain of pain in the chest, felt no palpitation and no anxiety. The appetite was good, the alvine discharges proper, and he followed his avocations so far as his strength allowed. The breathlessness, however, increased, especially when he exerted himself, ascended a stair, or lay on the left side. After harvest, in 1827, œdematous swelling of the feet appeared, but did not prevent him from moving about, and was scarcely observable in the morning on rising. In the summer of 1828 his strength was much impaired, the feet were constantly swelled, he could make little exertion, and the appetite was gone. On the 28th September he was brought by his own desire to the military hospital.

The following was then his condition. He was of middle size, compact strong frame, and broad-shouldered; face emaciated, pale, and dingy-coloured; lower extremities and hands œdematous; water was collected in the abdomen. The breathing was very laborious and confined, with elevation of the shoulders, and strong action of the abdominal muscles, while the thoracic cavity was not sensibly dilated. On percussion of the chest, the sound on both sides was normal above; below dull; the carotid arteries beat violently; strong pulsation above the collar-bone. The action of the heart normal; did not complain of palpitation; pulse from 100 to 110, strikingly small and feeble, though not intermitting. The patient lay constantly on the right side, and when he turned to the left side, or lay on the back, the breathlessness was increased.

The disease was considered to be dropsy of the chest, with ossification of the semilunar valves, and diuretic remedies were prescribed.

On the following day the constriction of the chest was very much increased, especially in the erect position; hands and feet cold; pulse accelerated to 120, and occasionally intermittent. The patient sunk into a soporose state; the breathing became very difficult; the pulse smaller and softer, and intermitted more frequently; and death took place on the 8th of October.

On opening the abdomen the epigastric arteries appeared unusually enlarged, and their walls ossified. The cavity contained about three pounds of clear yellowish serum. Some folds of intestine were united by old false membranes, which probably had been formed about thirty years previously, when the patient was suffering under dropsy; the right pleura contained about six pounds of fluid, by which the lung was compressed; the right lung was by old false membrane united to the costal pleura; the substance of the lungs was solidified; the cells appeared shrunk; and a melanotic deposit had taken place in the superficial and inner layer of the

lung. The cavity of the left pleura, in which was no water, was filled completely by the lungs; but they contained melanotic matter and serum in their cellular tissue.

On detaching the sternum the internal thoracic arteries appeared dilated to the size of the little finger; very serpentine in their whole course, and anastomosing with the enlarged lower epigastric arteries. Their walls contained osseous patches.

The heart was almost once again as large as a doubled fist, and its apex rounded; the walls of the left ventricle very thick and solid; the right ventricle not hypertrophied; the arch of the aorta much dilated. Below the origin of the left subclavian artery was found, in the slit-up aorta, a sort of partition, which almost entirely closed its canal. Above this arose the upper intercostal arteries, much enlarged. On more accurate examination of this partition, which formed a chord in the arch of the aorta, there was observed a very small opening of the diameter of half a line. Through this the arch of the aorta was connected with the thoracic portion. The edges of the small opening were lacerated, and the partition consisted of solid matter, which had the consistence of cartilage. The walls of the arch of the aorta were one line and a half thick. Below the partition, the aorta, to its division into the iliac arteries, presented the usual circumference. The vessels rising from the arch, as the *innominata*, the left carotid and subclavian artery, were much enlarged, and the latter was dilated. Immediately below the dilatation was the chorded part with the partition. The intercostal arteries of both subclavians were enlarged to the diameter of three lines, and they formed many serpentine flexures and net-like plexuses. They anastomosed with the enlarged upper intercostal arteries, which arose below the partition from the thoracic part of the aorta.

In this manner had the parts below the diaphragm received blood during life, partly by the superior and inferior intercostal branches, and those multiplied anastomoses, enlarged to the highest degree, and partly by the unusually enlarged internal thoracic arteries of the two subclavians, and their anastomoses with the enlarged epigastric vessels.

It is remarkable that the arctation of the aorta had little share in the final disease and death of the individual. This consisted in dropsy of the chest, induration, melanosis, and dropsy of the lungs, and consequent debility.

[The professor refers this arctation and chording of the aorta to inflammation taking place simultaneously with violent inflammation of the pleura and peritoneum in 1799. The reviewer, on the contrary, refers it to an earlier period—probably from birth, or a little before or immediately after that event.] (*Vide Report on Surgery.*)

ART. 64.—*Calculus in the Female, in a Cavity between the Urethra and the Vagina. Operation.* By Professor SYME, Edinburgh.

(*The Monthly Journal of Medical Science*, Feb. 1846, p. 83.)

Mrs. Weir, aged 75, was admitted into the Minto House private hospital on the 1st of November last, suffering from urinary irritation, which had existed more or less for twenty years. Upon examination the sound was found to grate upon a hard substance in passing along the urethra, and a

swelling, of stony firmness, was found, pressing down the vagina where it lay under this canal. Concluding, from these circumstances, that a concretion occupied the urethra, I dilated its orifice by incision of the mucous membrane merely, and then readily introducing my finger, was surprised to find the passage free. Suspecting that the stone might have escaped backwards into the bladder, I felt for the tumour in the vagina, and finding it still the same, concluded that the stone must lie in a cavity between the urethra and vagina. I therefore carefully examined the former of these passages, by passing my finger along its lower surface, and then detected a rough point of the calculus through a small aperture. By inserting a blunt-pointed curved bistoury into this opening, I divided the parietes of the canal, first forward and then backwards, so as to lay it open through the whole extent from its orifice to the bladder, without at all injuring the vagina, and then extracted an oval calculus, measuring an inch and a quarter in length. The patient required to have her water drawn off for two days; but after this suffered no inconvenience from the operation, and went home on the 15th.

I think this case worthy of mention, as being new to me, and as showing the possibility of removing a calculus from the situation occupied, without cutting the vagina.

## Art. 65.—*Removal of a portion of the Liver from the Human Subject.*

By John Macpherson, M.D.

(*The London Medical Gazette*, Jan. 1846, p. 112.)

The only notices that I have met with on the subject of the excision of portions of liver, are the following:

In Blanchard's 'Anatomia Practica Rationalis,' Amsterdam, 1688, is to be found the case of a soldier who was wounded by a sword in the hepatic region; the wound was succeeded by a profuse hemorrhage and deliquium. On the cessation of the hemorrhage a morsel of the substance of the liver was removed by the forceps, and the patient recovered after many threatening symptoms. At the end of three years he died of fever. On dissection, a small portion of the lower part of the wounded lobe of the liver was observed to be wanting; the other viscera were sound.

Professor Dunglison quotes a case from 'Dieffenbach's Journal,' in which a boy fell on a knife, and a portion of the liver protruded. Without being aware of its nature, the surgeon in attendance cut it off with his scissors. No bad effects followed.—*Americ. Medic. Intelligencer*, vol. i, p. 191.

The history of the second of these cases is very imperfect, and in both the portion of liver removed seems to have been very small.

I now proceed to the case which has fallen under my own observation, and which appears to be the first case of the kind of which a complete history has been published.

A Hindoo, aged between 60 and 70, was in June last brought in, a distance of six miles, to Howrah, with a spear wound in the abdomen about three inches above the umbilicus, and two inches to its right, through which a triangular portion of liver protruded, of about the size and shape of the four fingers of the hand, lying side by side. The wound itself did not exceed an inch in length, and was completely choked up by

the liver. The man stated that he had been stabbed in the dark about twelve hours previously, and that the liver came through the wound as the spear was drawn out. It was added that there had been very copious hemorrhage, but the liver itself was not wounded, and though the patient was in considerable pain, the pulse was very little depressed.

My friend, Dr. C. M. Henderson, who was present, agreeing that it would be impossible to return the protrusion without enlarging the wound to the extent of several inches, it was resolved, rather than wait for the tedious process of sloughing, to remove it by the knife.

To prevent hemorrhage, a ligature was applied tightly round the base of the protrusion, which was then cut off. Nevertheless, two arterial twigs bled very freely, and it was found necessary to take them up, and a double ligature was also passed through the stump and tied on either side, when all bleeding ceased. No attempt was made to return the portion of liver which still filled up the wound, as it was of course desirable to prevent all risk of blood or of bile being extravasated into the cavity of the abdomen. For a day or two the patient was rather low, and had slight irritative fever, and the bowels remained costive. These symptoms, however, yielded to a few doses of purgative medicine, and in nine days the ligatures came away along with a small slough of liver; the wound granulated and healed, and the man returned to his home in three weeks. No bilious discharge occurred from the granulating surface of liver. The portion of liver removed, after having lost its blood and being in spirits for some weeks, weighed $1\frac{1}{4}$ oz. Its surface is uneven, though not torn, and it is probably a portion of the edge of the right lobe, from near the notch between it and the left.

It is difficult to explain how so large a portion of liver could have protruded through so small a wound, even if allowance be made for the size of the wound being diminished by the contraction of the abdominal muscles, and for the protruded portion becoming congested. It is unnecessary here to allude to wounds of the abdomen generally, or of the liver in particular (for in this case the liver does not seem to have been wounded), or to the extraordinary recoveries from almost every variety of them. Such cases are innumerable.

It has long been known, from the experiments of one of the Monros, that rabbits have suffered very little from having portions of their livers cut off. It was also known that patients live for years after the loss of very considerable portions of liver by hepatic abscess; and may exist for months with the whole liver converted into a mere cyst; but the actual removal of a considerable portion of the liver from the human subject, with so very little constitutional disturbance, even allowing for the patient being a native, is a fact of considerable interest in medicine and in physiology.

I may add, that the patient complained of a good deal of pain when the surface of the liver was touched, but that cutting through its substance hardly caused him any.

The old man appeared two months after as prosecutor in his own case; he was in perfect health; there was a little puckering in of the skin about the wound, and the liver was evidently adherent beneath.

# PART III.

## MIDWIFERY, AND DISEASES OF WOMEN AND CHILDREN.

---

### SECT. I. MIDWIFERY AND DISEASES OF WOMEN.

ART. 66.—*Post-partum Hemorrhage. Its Anatomical Source and Pathological Nature.* By Professor SIMPSON, Edinburgh.

(*The Northern Journal of Medicine*, Jan. 1846, p. 1.)

No doubt the occurrence, after delivery, of great and decided atony in the whole muscular system of the uterus does assuredly give rise to post-partum hemorrhage. But if I may judge from my own observations, I would venture to remark, that the morbid condition which is most frequently and earliest seen in connexion with post-partum hemorrhage, and which is specially remarkable in cases where the flooding is more enduring than usual, is a state of irregularity and want of equability in the contractile action of different parts of the uterus; and it may be in different planes of the uterine fibres, as marked by one or more points in the organ feeling hard and contracted, at the same time that other portions of the parietes are soft and relaxed, and by the contracting and relaxing fibres, slowly but frequently changing their relative situations.

Upon the same principle, I believe that in attempting to prevent or remove the morbid condition leading to post-partem hemorrhage, when it is functional in its nature, and not connected with any organic or traumatic causes, we ought to endeavour to produce not merely a certain *degree and amount* of uterine contraction (the great and primary practical point to which we always justly look), but also a certain *equability and uniformity* of contraction. At the same time I would repeat, that this part of the subject, like the whole question of the manner and means by which hemorrhage is prevented from the exposed uterine veins after every case of ordinary labour, stands, in my opinion, in need of new, careful, and extended investigations. I have, however, at present no desire to encounter so wide and complicated an inquiry, and shall content myself with stating in reference to the subject, the few following suggestions.

1. Uterine hemorrhage after the separation of the placenta in any of

the stages of labour, is *not arterial* in its character. The utero-placental arterics are numerous, but so long and slender as to become readily closed; 1, by the tonicity of their coats; 2, by contraction of the uterine fibres upon the course of these vessels themselves as they pass through and amid the uterine structure; and 3, and prineipally by the changes in their tissues produced by the mechanical rupture of their coats, *torn arteries* being little if at all liable to bleed, and the placenta being separated by a true process of *avulsion*.

2. Hemorrhage, therefore, under the conditions supposed, is *venous* in its source and nature. Further, it is specially important to remark, that it is a *venous hemorrhage by retrogression*. The *forward* course of the uterine and utero-placental venous circulation is from the dilated maternal capillaries of cells of the placenta towards the periphery of the uterus and the ovarian and hypogastric venous trunks. In uterine hemorrhage the blood that eseapes, instead of flowing onwards, regurgitates *backwards* into the uterine cavity.

3. The mechanism by which, after the separation of the placenta, this retrograde course of the venous circulation towards the cavity of the uterus, so as to lead to hemorrhage is prevented, is probably of a compound character, or is effected by different means. Each of these means may be more or less efficient under different circumstances and at different times.

4. The most powerful of these preventive measures consists in the uniform and regular contraetion of the uterine fibres. By this contraction the canals of the supplying arteries are constricted, and the venous tubes or sinuses which more immediately yield the discharge are directly compressed. The facility of this compression of the sides of the veins and the consequent diminution of their cavities, is promoted by the naturally thin, flattened forms of their canals, and by the fact that the proper contractile tissue of the uterus forms their second coat, the uterine veins consisting of the usual lining membrane of the venous system placed in direct contact with the muscular tissue of the uterus. At the same time it is to be recollected, that there seems to be often no direct relation between the degree of uterine contraction and the degree of tendency to hemorrhage, for, as we have just seen—1, no hemorrhage may occasionally be observed after delivery, though the uterus is not contracted to its usual degree; and 2, it may be present when the uterus is apparently well contracted; but, 3, there are, according to most anatomists, few or no *contracting* fibres in the strueture of the os and cervix uteri, and certainly after delivery I have generally, if not always, found it remaining open, gaping, soft, and flaccid, even when the proper cavity of the uterus above felt shut and contracted, and its parietes hard and firm. Still when the placenta is attached to the surface of this *uncontracting* portion of the uterus, as in *placenta prævia*, hemorrhage is not common after its separation, unless some laceration of its vessels has occurred. Here we have post-partum hemorrhage prevented *without* the contractile mechanism, generally considered necessary for its avoidance, being almost in existence. And, 4, in cases of spontaneous or artificial extraction of the placenta *before* the child, in some placental presentations and twin labours, the placental mass may be completely separated, and the uterus still remain *distended* by the presence of a child in its cavity, so as to prevent

much contraction of its fibres without hemorrhage occurring. The venous trunks running to the uterus are not supplied with valves, and under the above and other circumstances, by what means in addition to, or in substitution of, the contraction of the uterine fibres, does nature prevent the retrograde flow of venous blood into the uterine cavity; or, in other words, by what means does she prevent uterine hemorrhage?

5. The structure and mutual relations of the venous sinuses of the uterus seem calculated to obstruct and prevent such a retrograde flow of blood in their tubes as to cause hemorrhage. The uterine veins are large, but of a compressed, flattened form, and arranged in several planes or floors above one another in the uterine walls. On examining these veins in several pregnant uteri, by dissecting them from the outer or peritoneal surface of the organ downwards towards the mucous, I found the following arrangement: each venous tube gives off numerous communicating branches to the veins of its own plane or floor, by a set of *lateral* foramina. When, however, a venous tube of one plane comes to communicate with a venous tube lying in the plane immediately beneath it, the foramen between them is not in the *sides* but in the *floor* of the higher or more superficial vein, and the opening itself is of a peculiar construction. Looking down into it from above, we see the canal of the vein below partially covered by a semilunar or falciform projection, formed by the lining membrane of the two venous tubes as they meet together at a very acute angle, the lower tube always opening very obliquely into the upper. In the folds of these falciform projections the microscope shows the common contractile tissue of the uterus. Do these semilunar or falciform projections, and the oblique communications of the lower with the higher planes of veins, allow the normal flow of venous blood from the deeper to the more superficial veins of the uterus, while after the placenta is separated they prevent that anormal or retrograde flow of it from the more superficial towards the deeper-seated venous tubes which would produce hemorrhage? Here I suppose it possible that these falciform processes may act upon the same principle as the Eustachian valve, but in a less perfect manner, while by the obliquity of the communications between the different planes of veins it may be that blood does not so readily retrograde into the deeper vessels, in the same manner that urine does not retrograde into the ureters from the bladder, in consequence of the oblique opening of the former into the latter. Do the uterine fibres seen in the venous falciform processes tend to aid this valve-like mechanism by diminishing, under contraction, the apertures between the different planes of veins?

6. One cause contributing to prevent hemorrhage after the total separation of the placenta, is the abstraction from the uterine vascular system of the derivative or sugescent power of the maternal circulation in the placental cells, and the consequent tendency of the blood to flow in the more direct and freely communicating channels that exist between the uterine arteries and veins. Besides, the general and direct forward current of the blood along the course of these large uterine veins diminishes, and in a measure destroys the tendency which it might otherwise have either to flow backwards, or to escape by any existing lateral apertures of the vessels.

7. Among the other remaining means by which hemorrhage is more or

less prevented after the detachment of the placenta, I may mention—1, the occasional presence of tufts of fœtal vessels left in the orifices of the uterine veins, and forming not only immediate mechanical obstacles, but nuclei for the ready coagulation of the blood; 2, the formation of coagula in some of the collapsed venous tubes and orifices; and, 3, the presence for some hours, or even days, after delivery, of the collapsed decidua over the apertures seen in the veins on the interior of the uterus.

To these few and important suggestions I am desirous to add one remark. Several of the natural means of arresting uterine hemorrhage that I have spoken of, admit of extended anatomical examination being applied to their more perfect investigation; and some of the observations that I have ventured to offer may be yet proved or disproved, by being tested by direct experiments with vascular injections thrown into the dead body.

## Art. 67.—*Expulsion of the Ovum entire at the full period of Gestation.*

By W. S. Rootes, m.d. Ross, Herefordshire.

(*The Lancet*, Nov. 1, 1845, p. 474.)

I was requested to attend M. S., the wife of a shoemaker of this town in labour. Visited her at ten, at eleven the waters broke, and she went to bed. On examination found the head of the child presenting naturally; it had cleared the brim of the pelvis, and at half-past eleven the child was born in one pain, no arrest or delay occurring. After detaching the child, and before I had time to place my hand on the patient's abdomen, my attention was attracted by a very strong pain—attracted to it by the nurse and the movement of the patient—for throughout the whole of her labour she never gave utterance to a single cry or even moan. Thinking the placenta was coming away, I introduced a finger into the vagina by the side of the funis, and found the head of another child presenting very low down; by its side, partially over it, and likewise protruding through the vagina, was a large bag of the membranes distended with water. This I tried to rupture, but at the same moment a strong pain came on, and the second child was born, enveloped in the unbroken membranes containing the liquor amnii, and with the placenta attached; the placenta of the first child, to the margin of which the second placenta was adherent, being all that remained in the vagina. I lifted up the bed-clothes and showed the nurse this, to me, unique and beautiful sight. We distinctly saw the child through the transparent membranes moving, as also the cord which was coiled round its neck, and the divisions of the latter where it joined the placenta. I lost no time, however, in gazing on it, but proceeded to rupture the membranes and liberate the child's neck from the pressure of the cord, and I then detached it. Placing my hand on the abdomen I found the uterus well contracted down into the pelvis. The placentæ were then removed. The woman had previously given birth to eleven children. She is 41 years of age, has a very roomy pelvis, but says all her children have been born small. The twins are somewhat less than the average bulk and size; they are likely to thrive. The first born and the smaller of the two is a boy, the other a girl.

ART. 68.—*Retention of a Portion of the Placenta developed within the Fallopian Tube, with a fatal result.* By J. BELL, Esq., Glasgow.

(*From a Paper by Dr. Pagan, in London and Edinburgh Monthly Journal,* Nov. 1845, p. 817.)

The case occurred in the practice of Mr. Hunter. Mrs. M'D., after a tedious labour, gave birth to a male child. About an hour afterwards, considerable hemorrhage took place, and though cold in the usual modes, was assiduously applied, yet the flooding increased. Mr. Hunter determined to remove the placenta, and was in the act of introducing his hand for that purpose when the woman fainted. The relatives becoming alarmed, I was sent for. I found the patient pale and much exhausted, the loss of blood somewhat diminished, and the placenta still in the uterus, which felt large and soft. The immediate extraction of the placenta was resolved on. Its removal was affected with considerable difficulty, in consequence of its adhering firmly to the uterus. After its separation, the uterus contracted and the hemorrhage ceased. The placenta was much lacerated, and extensively indurated on its uterine surface.

During the night several clots were discharged from the vagina, and slight hemorrhage returned, but it was suspended by the application of cold to the nates and vulva.

On the 2d and 3d days the patient had no complaint but debility. On the morning of the 4th day she had a rigor, which was followed by severe pain in the lower part of the abdomen, and other symptoms of peritonitis. Mercury was employed both internally and externally, along with rubefacients, &c., but without advantage. She sunk and died the 7th day after delivery.

*Dissection thirty-six hours after death.* The abdominal cavity contained about two pounds of serous fluid, mixed with small pieces of soft lymph. The peritoneum of the parietes of the lower part of the abdomen, and of the intestines, was reddened or congested at several points; the peritoneal covering of the uterus was very much congested, presenting several patches of a deep crimson hue, and surrounded by layers of soft lymph; the cellular tissue was filled with a thin, yellowish, purulent-looking fluid. On making a section of the uterus, we found in its cavity about an ounce of dark-coloured fluid, of an offensive odour; the mucous membrane was of a dark colour and very soft. Near the fundus uteri, towards the right side, a blackish substance, about the size of a large plum, was observed; it was found to be a portion of the placenta adhering firmly to the uterus. Whilst removing it, we discovered that it penetrated the fallopian tube, on opening which we found a portion of placenta, measuring $3\frac{1}{4}$ inches in length, and adhering to the tube round its margin as it entered the uterus, at which place it was fully three inches in circumference, but gradually tapered into a point as it approached the other extremity of the tube.

ART. 69.—*Case of Vaginal Pregnancy.*

(*The Medical Times,* Jan. 1846, p. 325. *From Otto's Danish Journal.*)

On the 13th of January, 1839, the author of this communication visited a young woman, pregnant for the first time. He found her exceedingly

debilitated, with a very feeble pulse, and scarcely able to articulate. For the last four months she had been constantly confined to her bed. About the fourth month of pregnancy she had been attacked by strong bearing-down pains, and had been relieved by an antispasmodic mixture. At this period a tumour made its appearance posteriorly in the vagina, and had since increased considerably in size. On examination, this tumour was found to be of the volume of a hat crown, protruding between the thighs of the patient, and dragging forward the rectum. One arm was projecting from an orifice below the vagina, and from this it was judged that the fœtus was in a state of putrefaction. The arm was twisted off, and by the use of the hook, the fœtus was readily extracted from its containing cavity, care having been taken to pull from below upwards towards the patient's abdomen. The placenta adhered very firmly to the vagina, and from the dread of hemorrhage no attempt was made to remove it. The tumour was now very much reduced in size; aromatic fomentations, with acidulated decoction of cinchona, internally, were prescribed. Two days after the patient died. The fœtus was of the male sex, and from seven to eight months old. In this case of extra-uterine pregnancy, the author assumes that the ovum had originally been introduced into the uterus, and had since, about the third or fourth month, dropped into the vagina, and there been developed to its ultimate volume.

ART. 70.—*Knots on the Umbilical Cord.* By C. WATERS, M.D., Maryland.

(*The American Journal of the Medical Sciences*, Oct. 1845, p. 358.)

Knots upon the funis umbilicalis have been noticed and regarded as the cause of danger to the fœtus in utero, or at the time of birth. Dr. Waters observed three cases within a few years, and is disposed to regard the occurrence as more frequent than is usually supposed.

Mrs. ——, in labour with her third or fourth child. The labour was natural and quick; the infant was a large female. "The cord was tied in a knot about a foot from the umbilicus, and the noose was drawn as closely as it could be without interrupting the circulation." Mother and infant did well.

Mrs. ——, in her second labour. The cord being drawn tightly around the neck of the fœtus, Dr. Waters drew it downwards over the head before the child was delivered. The funis was very long, and tied in a knot. Mother and infant did well; but at the moment of delivery the knot was so tight that pulsation in the cord was very feeble and slow, and the child made no efforts at respiration. On loosening the knot and applying a stimulant to the surface, the pulsation grew stronger, the child breathed, and was soon removed. The infant was a large female.

This case suggested the propriety of examining the whole length of the cord in all cases of still-born infants. Had the knot not been detected and loosened this child would perhaps have been lost. Dr. Waters does not recollect ever having heard or seen the propriety of this examination suggested by any one.

Mrs. ——, in labour; the mother of a numerous family. The funis was drawn around the fœtal neck, and Dr. Waters gently removed it before delivery was completed. The cord was about two feet nine inches

long, and there was a knot drawn pretty tightly, but not so as to interrupt the eireulation, about two and a half inches from the umbilieus, the infant was a healthy girl, and, with the mother, did well.

All these cases occurred in the humbler walks of life, and the patients were in the regular habit of taking much aetive exercise.

ART. 71.—*Singular case of Intra-uterine Perforation of the Placenta.*

By THOMAS TAYLOR, Esq., Cricklade.

(*The Provincial Medical and Surgical Journal*, Jan. 7, 1846.)

Mr. Taylor was called at four o'clock in the morning to attend a young married woman in labour of her first child. The membranes had ruptured at four o'clock the previous morning, but she suffered no pain until two hours before she was seen. The pains were strong and effeetive; and, on examination, a footling case with the breech in the pelvis was found. The pains becoming strong and expulsive, without a corresponding advance of the child, the presenting right foot was brought down, but at that time the other leg was not within reach, it being in a position parallel with the body of the infant. The breach having been protruded, it was again attempted to deliver the left leg, but on passing up the finger for that purpose, there was found apparently a strong ligament, very tense, attached immediately below the knee, and which kept the limb in the position it was in, and incapable of being delivered; the arms however were easily brought down, and in a few minutes delivery took place, and with it the placenta,—the child was still-born. On examination, the placenta, which was lying on the chest of the infant, was discovered to be pierced by the right arm and left leg; the part round the leg being so firmly bound as to have destroyed the skin and eellular membrane by absorption; the ealf of the leg was much swollen by the pressure during labour. There was no hemorrhage; on the contrary, the discharge was less than usual. The child was small, and about three weeks before its time. The mother did well.

ART. 72.—*Circumstances which render Amputation of the Neck of the Uterus unjustifiable.*—1. Whenever the indurated or malignant deposit, or uleeration, extends beyond the neck into the body of the womb, the operation is indefensible.

2. Where the disease of the eervix is thus limited, if the pelvic glands or adjaeent eellular membrane are enlarged by deposition, or have been long indurated, the whole of the disease cannot be removed, and therefore any attempt at excision would be blameable.

3. The immobility of the uterus is an insurmountable objection.

4. Vascular congestion of the womb and ovaries is at least a reason for delay. Excision, in such a eondition, will probably be attended and followed by dangerous hemorrhage.

5. Serious affection of the general health, confirmed "cancerous cachexia," phthisis, or organic disease of important viscera, are positive prohibitions.

*Dr. Ashwell on the Diseases of Women.*

ART. 73.—*Interval of seven days between the Birth of Twins.*—A case is recorded in the 'Oesterreich Med. Wochenschr.,' Nov. 14, 1844, where, on the birth of the first child, the medical attendant discovered a second presenting in a transverse position. The second child was not born until seven days after the first.

*The Northern Journal of Medicine*, Jan. 1846.

ART. 74.—*A new Sign of Pregnancy.* By Dr. Pollenden.—The author states, that during a practice of eighteen years he had observed a peculiar smell of the vaginal mucus to be a constant and unerring sign of pregnancy. The smell is musty, like that of spermatic fluid or liquor amnii, and after a vaginal examination, cannot be mistaken for any other odour. In a great many cases of pregnancy, during the first, second, and third months, when the condition of the patient was doubtful, owing to the earliness of the period, the author never in a single instance failed to discover the true state of the party by means of this sign. According to his latest observations, the odour is perceptible as early as the eighth day of gestation.

*Northern Journal of Medicine, from Med. Correspondanzblatt Rhein und Westfäl Aerzte.* Bd. iv, No. 1, 1845.

ART. 75.—*Influence of the Imagination of the Mother over the Child.*—After relating a remarkable instance where a man had a double hare-lip, with a median protuberance supporting the incisor teeth, and was also a *sexdigitarian*, having six fingers on each hand and six toes on each foot, whose child also presented the same malformations, in which it is impossible to deny a family disposition to hereditary transmission, M. Roux observes that the matter may be regarded in another point of view, which may be of some value. May it not be strictly true that in cases of this kind an influence has been exercised by the mother over the product of conception, that perturbations of mind; moral emotions;—that mental impressions, which we know mothers to be susceptible of during pregnancy, are reflected upon the fœtus, and produce malformations in the infant? M. Roux avows that, in defiance of the ridicule of the learned, he believes in the empire of the imagination of the mother. It is not generally admitted that a woman can transmit to her infant malformations by a disturbed imagination, yet there are facts before us sufficient to render us less sceptical; still it must be admitted that this power of imagination manifests itself only under particular circumstances.

*Gazette des Hôpitaux*, Jan. 25, 1846.

ART. 76.—*Cure after Rupture of the Uterus and Abdominal Section.* By Dr. KUHNE DE WEYER, Austria.

(*From La Nouvelle Encyclographie des Science Médicales*, Jan. 1846, p. 70.)

A woman, aged 32, the mother of six children, who had always difficult labours, having reached the full term of her seventh pregnancy, experienced the first pains of labour, the membranes broke, and the liquor amnii was discharged. The pains were strong, and the labour advanced slowly, in consequence of the narrowness of the pelvis. The midwife

applied frictions, with a liniment, the labour-pains being very severe. All at once, during a violent pain, the patient felt an intense uneasiness in the right side, and the labour slackened. Dr. Kuhne was called about five o'clock in the morning; he found the patient on the bed, her face flushed, eyes bright, with great thirst, vomiting, and frequent cough; the heat of the skin increased, a clammy sweat covering the whole body; pulse 95, hard and full; the abdomen natural in development, but very painful. Behind the linea alba, under the navel, the limbs of the fœtus could be obscurely felt; the fœtal pulse could not be heard, but its motions had been felt some hours previously. The head was easily reached on examination, being in the first position, and of small size. The labour had entirely ceased, and the patient felt a sense of rupture at the moment when the severe pain occurred in her right side. The author being in doubt, temporized for eight hours, when a further examination gave the following results. Symptoms the same as before, pulse 100, the fœtus easily felt in the abdomen, behind the linea alba, the head having risen above the strait, and it was impossible to reach it. Being now certain that a rupture of the anterior wall of the uterus had occurred, the author proposed the abdominal section, as the only chance of recovery left; the patient consented, the operation was performed according to art, a dead child and the placenta were extracted by the wound, and at the expiration of six weeks, the mother being perfectly cured, resumed her ordinary occupations.

## Art. 77.—*The Diagnosis of Ovarian and Abdominal Tumours.*

By Dr. John Hughes Bennett, Edinburgh.

(*From the Edinburgh Medical and Surgical Journal*, April 1, 1846, p. 403.)

In addition to what is already known on the subject, there are two other methods of investigation which seem to me capable of greatly assisting the practitioner in his efforts to form a correct opinion of the case. 1st. The uterine sound recommended by Professor Simpson. 2d. A microscopical examination of the fluid removed by paracentesis. By fixing the body of the uterus with the sound, and by elevating, depressing, or bringing forwards the handle of the instrument, both the anterior and posterior portions of the fundus may be felt with the left hand above the pubis, through the integuments. The information is negative, but it becomes of immense importance when the question arises, whether the tumour is uterine or ovarian. By pushing the uterus from side to side, we are enabled to act upon the ovaries, and to determine, by the impulses communicated to the hand, whether the tumour be on the right or the left side, and to form a tolerable idea, in certain cases, whether it be free or attached. By this instrument, then, we are assisted in resolving the question regarding the *seat* of the tumour. The microscopic examination of the fluid removed by paracentesis is capable of being made highly serviceable in diagnosing the *nature* of the tumour.

In this fluid flocculi exist which are not composed of lymph, as was at first supposed, but of numerous cells, varying in size from the $\frac{1}{100}$th to $\frac{1}{400}$th of a millimeter in diameter. They are slightly granular, of round and oval shape, unaffected by water, but becoming more transparent on

the addition of acetic acid, and exhibit a distinct nucleus, about $\frac{1}{140}$th of a millimeter in diameter. The indented cells are imbedded in a granular matter, which can easily be broken down. They thus resemble those which constitute the epithelial surface of certain membranes. The cysts in the diseased ovary are lined by a delicate membrane, covered with nucleated epithelial cells, and there is no difficulty in identifying the corpuscles seen in the fluid with those observed lining the cysts. In one case examined, masses of these had evidently separated and floated into the abdominal cavity through perforations in the external sac of the ovarian tumour. In another case, none of these corpuscles could be discovered; but only shapeless flakes, mixed with granules. After death the tumour was found to be fibrous throughout. In another case the cells were of the character above described, combined with the débris of a fibrous structure, from which it was inferred that the external envelope of the tumour was in a state of decomposition. On examination after death a compound encysted tumour of both ovaries was found, with sloughing of the fibrous sac on one side, and a colloid cancer of the omentum and peritoneum.

There can be little danger of our confounding the fluid accompanying encysted ovarian disease with that found in inflammatory or passive dropsies. In peritonitis we find primitive filaments mixed with plastic or pus corpuscles, which can never be mistaken for the large epithelial cells observed in the fluid of ovarian dropsy. In accumulations of fluid caused by diseased liver, Dr. Bennett has not detected, when uncombined with inflammation, any structures whatever.

Dr. Bennett wishes these observations to be considered as a contribution intended to direct the attention of practitioners to this subject, and not as a complete investigation from which positive results should be drawn.

## Art. 78.—*The Nature of the Cicatrix of the Uterus after Rupture.* By Dr. Merrem, of Cologne.

*(From a System of Surgery by J. M. Chelius.)*

Dr. Merrem, struck with the frequent occurrence of rupture of the uterus in women who became pregnant after having undergone the Cæsarean section, has shown that in the nature of the cicatrix, by which wounds of the uterus are very often closed, we have a sufficient explanation of the accident. The wound is not unfrequently closed merely by peritoneum, or, in other cases, adhesions take place between the edges of the uterine wound and those of the divided abdominal parietes, and a fistulous opening into the wound has thus been formed, which continued open for months. Of course, in either of these cases, the uterine contraction in a subsequent labour would soon tear asunder this frail bond of union, and expose the woman to all the dangers of a ruptured uterus. Sometimes, indeed, the wound is united by a different process, though one not much more secure. Thus Merrem, in performing the Cæsarean section upon a woman for the second time, found the former incision four inches long and three fingers' breadth wide. It was concave instead of convex, like other parts of the walls of the uterus, and was composed of white glistening fibres, with a dilated blood-vessel running close to either

margin. In the twelfth volume of the 'Medico-Chirurgical Transactions,' Mr. Birch relates the history of a woman who recovered from a rupture of the uterus. Nine years after, having married again, she became pregnant; during labour the uterus gave way, and four days afterwards the woman died.

At the post-mortem examination no trace of the former rupture could be discovered; but its situation corresponded exactly to the place where the uterus had again given way. Dr. Merrem conceives "that these cicatrices cause rupture by preventing the natural development of the uterus, and by interfering with its regular contractions."

## Art. 79.—*Hysterical Aphonia cured by Nitrate of Silver.*

(*The Medical Times*, Jan. 31, 1846. From *Professor Otto's Danish Journal, Bibliothek for Læger*. No. 1.)

A patient who had been weakly from birth, and in whom menstruation had not commenced, was so deeply affected by the death of her father, which had occurred half a year before, that she was attacked with divers hysterical symptoms, which, from her mother's report, especially implicated the abdomen. Abut two months previously to the writer's visit the patient's voice had become somewhat hoarse and weak, and this affection had since increased to such a degree that, on the 3d of November, the power of speech was well nigh extinct, and the young woman could express only by gesticulations her wishes and feelings. She had, moreover, a short, dry cough, violent palpitations of the heart, and spasmodic contractions of the lower limbs. The tongue was somewhat loaded; the alvine discharges scanty; pulse small, slow, and feeble. Pills of assa-fœtida and aloes had been administered with the effect of regulating the bowels, without producing any other change in the patient's condition. A pill, containing one fifteenth of a grain of argentum nitricum fusum, was now directed to be given every other hour, and friction of the throat with an antispasmodic liniment. After four day's perseverance in this plan, the patient was able to articulate in a hoarse and feeble voice, "yes" and "no." The limbs, previously contracted by spasm, she could now extend. The cough was relieved; and the strength returned. She continued the use of the pills, and on the 13th of November was able to utter a few words, yet in so hoarse and low a tone that they could only be heard by the application of the ear to her mouth. At times she complained of pain in the stomach; the appetite was impaired, and she suffered from headache. The pills were now left off, and some digestive medicines substituted for them. On the 18th of November, the voice was perfectly restored, but the patient was so weak that she could only for a few moments quit her bed. Under the use of the strengthening medicine her condition, however, constantly improved, and menstruation took place, although somewhat sparingly. On the author's last visit the patient could bear to sit up, and the aphonia, with all the spasmodic symptoms, had completely disappeared.

ART. 80.—*Ovarian Dropsy. Accidental Rupture of the Cyst, followed by Recovery.* By RICHARD EAGER, Esq., of Guildford.

(*Provincial Med. and Surg. Journal*, Feb. 11, 1846, and *The Lancet*, Feb. 28, 1846, p. 245.)

After describing the patient's history and symptoms, which were unequivocally those of ovarian dropsy, Mr. Eager states:—On the 13th November a purgative was given to relieve constipated bowels,—it induced most distressing and violent vomiting, succeeded by rigors and syncope. On the following day a marked change had occurred in her size and form; and to adopt her own expression,—"she felt a sense of want, sinking, and emptiness, almost amounting to fainting." Early on the morning of the 15th I was called to her, and found her suffering from all the symptoms of sub-acute peritonitis, which readily yielded to the usual remedies. On the 17th, a very careful and minute examination of the abdomen failed to detect a vestige of ovarian enlargement, but the whole belly was augmented in size, and over all its most dependent parts a very distinct sense of fluctuation was communicated to the hand by percussion. On this day her circumference over the umbilicus was thirty-eight and a half inches. During three or four days subsequent to this date, she evacuated large quantities of urine, to the amount of four, five, and six quarts per diem. On the 22d, her size, by admeasurement, was reduced to twenty-seven inches, with no perceptible enlargement or fluctuation. From the above time no remarkable symptoms have presented themselves, although her convalescence has been retarded by extreme debility. This has, however, at length yielded to a generous diet, change of air, and a course of steel in a bitter. At the present time she appears to be rapidly advancing to the recovery of her customary good health; in fact, she told me to-day, she felt better than at any time during the past four years.

From a consideration of the above facts, I am induced to believe, that violent action of the abdominal muscles and diaphragm, excited by the vomiting on the 13th November, ruptured the ovarian cyst; and its contents thus liberated, were extravasated into the abdominal cavity (producing the attack of peritonitis) whence they were removed by absorption, the cyst itself remaining in a collapsed and contracted state."

ART. 81.—*Extirpation of the Uterus.*
By T. GREGSON, Esq., Newcastle-on-Tyne.

(*From the London Medical Gazette*, Feb. 1846, p. 342.)

Mrs. A—y had been delivered of her second child by a village surgeon two years ago. As she complained of much pain and uneasiness on the third day, her medical attendant ordered her to get out of bed and walk smartly across the floor. She recovered slowly and complained much. About a year ago she came here, and was some months under the care of a surgeon. About six months since I was called to attend her. I found her extremely emaciated and exsanguine, having, for above a year, been exhausted by most profuse hemorrhage at every monthly period. On examination, I found a pear-shaped body filling the vagina, the os tincæ embracing it firmly, and apparently adhering on one side. I gradu-

ally introduced my fingers, endeavouring to grasp and push it through the os tincæ. This procedure caused extreme pain, and hemorrhage, without the tumour yielding in the least. It was of a purplish red colour. Feeling satisfied that it was an almost complete eversion of the uterus, I endeavoured by chalybeates, ergot, and astringents to improve the system, but every monthly period produced extreme exhaustion, and death seemed inevitable. Being resolved, as a last chance, and herself and friends being willing, I determined to extirpate the uterus. I went, accompanied by my friend, Mr. Frost, a most able accoucheur, who agreed with me that, as she was much exhausted and exsanguine, the attempt was justifiable. I laid hold of the tumour with the vulsellum, and drew it down as far as possible; in doing so, the os tincæ entirely disappeared, leaving no doubt of the nature of the case. A very strong silk cord was then passed around it, and carried as high as possible by means of the double canula, the cord being also passed through the eye of a strong steel staff, very slightly curved in a bow-shape. I found this a very valuable means, as I could carry the ligature around the parts with the greatest facility. The knot was then tied with great firmness, leaving the staff included in the ligature, and opposite to the knot. This instrument was fastened to the thigh by a piece of tape. On the second day, by merely turning the handle of the staff once or twice, the ligature was greatly tightened; this was done from day to day, causing the rapid death of the part. It came away on the ninth day. During the time from the operation to its coming away, reaction was extremely moderate. She had an occasional anodyne, the catheter was used twice, and castor-oil was prescribed. She gained strength rapidly: she was made to keep the recumbent posture about twenty days. It is now three months since the operation was performed. She goes about her house, and has walked out a little, feeling easy and comfortable. These cases being generally considered hopeless, I have detailed matters perhaps minutely. I believe the precautions taken, when the ligature is used, to prevent inflammation, often produce the evils intended to be avoided; I allude to not tying the ligature too firmly at first. I think that no ligature can be tied too firmly, and that the great point to be aimed at is to destroy the vitality of the part at once, this being the surest means of preventing spreading inflammation and absorption of purulent or putrid matter.

On examining the part, I find that the entire body and neck of the uterus has been removed. There has not been the least disturbance at the monthly periods, nor symptoms of the system feeling the want of the organ removed.

ART. 82.—*Case of Internal Hemorrhage during Labour treated by Galvanism.*

By THOMAS DORRINGTON, Esq., Manchester.

(*Condensed from the Provincial Medical and Surgical Journal*, March, 11, 1846, p. 105.)

On September 27th, 1844, I was sent for to Mrs. Boyle, 28, Major-street, about six hours after the commencement of labour, and some hours after the rupture of the membranes. My friend Mr. Bent had arrived about five minutes before me. We found the woman suffering from the effects of hemorrhage in an extreme degree, though a pint of blood

only had escaped externally. The labour pains had gone off, the os uteri was very rigid, and dilated to the size of half-a-crown only, and the uterus soft, and without tone, when examined through the abdominal parietes. We gave her about half a drachm of tincture of opium, and put on a bandage. A thin serous discharge tinged with blood, however, continued to drain from the uterus, indicating internal hemorrhage, and we therefore administered half a drachm of secale cornutum, infused in water, in two doses, a little tea being added to the first, and a little brandy to the second. Before, however, this was done, we had sent off for Dr. Radford, desiring him to bring his galvanic apparatus. In about twenty minutes or half an hour after the ergot had been given, it began to act, and intervallic uterine contraction set in, the head bearing down on the os uteri, and the thin serous discharge soon after ceasing. In the intervals between the pains the uterus still remained soft and doughy. Dr. Radford raised the head from the os uteri, so as to allow of the escape of a considerable quantity of the liquor amnii, which had been retained above it; the latter portions of this fluid were deeply tinged with blood. We agreed in opinion that to deliver in such a case would be death, even if the os uteri had been in such a state as to have permitted the proceeding. It was therefore determined to try galvanism, applied to the uterus, to induce tonic contraction of that organ, so as to keep the flooding in check, and give time to get support into the woman.

We applied one conductor of the electro-magnetic apparatus to the os uteri, and the other to the abdominal parietes over the fundus uteri. The woman immediately began to complain that we were cutting her, and the uterine action came on at once. After having used the remedy a few minutes we desisted, and had great pleasure in finding that the tonic contraction of the uterus had been called into play. We again applied the galvanic shocks and currents, and the uterus immediately responded to the applications, strong contraction at once taking place, and the woman complaining of cutting pain. In about twenty minutes after its first application, we finally ceased to use it, so firm a state of tonic contraction having been induced that we considered it safe to leave the woman, with orders that beef-tea, broth, and eggs beaten up with milk, should be given her at intervals, and a teaspoonful of brandy in a little water occasionally. An abdominal bandage was kept firmly applied. We found the head bearing down on the os uteri with a much greater degree of pressure than had existed before the galvanism was applied, and we left with a firm conviction that the galvanic treatment had been of most essential service in this, the first use in which Dr. Radford's new plan had been tried in the human subject.

There was no further flooding, and the woman went on very well, taking a moderate amount of support, till half-past ten, p.m., six hours and a half after the application of the galvanism, when labour came on. The action of the uterus was not very strong, but about two, a.m., on the following morning the labour terminated. After the head was two thirds expelled, the action of the uterus entirely ceased, the abdominal muscles alone contracting, so that the latter part of the labour was completed by Mr. Bent carefully extracting the child, which was still-born, whilst I managed the proper compression of the abdomen. The placenta was easily withdrawn from the uterus immediately after the birth of the

child, and coagulum, about a pound weight, accompanied it. I then tightened the bandage, and put a compress over the uterus, which caused the expulsion of another coagulum, about two pounds in weight. During the latter part of the labour the woman was so exhausted from her own efforts at straining, when the uterine action ceased, that we gave her about two tablespoonfuls of brandy in a little water. After the labour was over we gave a drachm of tincture of opium, and left her with orders that she should be kept perfectly quiet, with the head low, and light nourishing diet to be given at short intervals. She slept well during the night.

Notes of the subsequent progress of the case were not taken. After a day or two pain and tympanitis set in, the pulse became quick and feeble, and she sunk rapidly on the fourth day. On inspecting the body on the third day after death, its whole external surface was quite blanched, and the abdomen immensely tympanitic. Not the slightest effusion of serum, or lymph, nor any injection of the peritoneum was found. The uterus was rather longer than usual, but well contracted, and by no means softened, its peritoneal covering free from inflammation; the internal one was covered with a dark-coloured coating of what appeared to be lochial discharge. On making a section of that part of the uterus to which the placenta had been attached, and tracing the veins there was no indication of thickening or inflammation.

*Vide Report on Midwifery.*

ART. 83.—*Inversion of the Uterus occurring at the Fourth Month of Utero-gestation.* By EBENEZER SKAE, M.D., Edinburgh.

(*Condensed from the Northern Journal of Medicine*, July, 1845, p. 65.)

I was requested, on the evening of Saturday, the 25th of January last, to see a Mrs. F., who, I was informed, was very ill, in consequence of having had a miscarriage. I found her in a state of great distress and exhaustion. She complained of severe headache, of intense pain in the back, and both iliac regions, but especially the left, extending down the thighs, anteriorly, and even affecting both ankles. The pulse was small and weak, and ranged between 120 and 130; the skin cool, and covered with a clammy moisture. She stated that she experienced constant down-bearing pain, attended with flooding, and a sensation of something having fallen down within her. I was further informed, that in consequence of considerable bodily fatigue which she had undergone two or three weeks previously, she had been seized with flooding on the 15th, that on the following day abortion had taken place, after being four months pregnant; on the 18th she had felt so well as to get up and attend to some household matters, but that the flooding had afterwards increased to such an extent as subsequently to necessitate her confinement to bed; that in consequence of feeling very weak, she had that morning (the 25th), about ten o'clock, taken some wine and water, which she immediately vomited; and in the act of vomiting, which was severe and continued, she was sensible of something falling down within her; and from that time up to the present (half-past ten, p.m.), that sensation continued, along with down-bearing pain, flooding, much general uneasiness, and extreme prostration of strength.

On introducing the fingers of my right hand into the vagina, I found the passage nearly filled up with an elongated and somewhat irregular spherical tumour of pretty firm consistence, and having shreds of membrane attached to it; and on passing one or two fingers up to the os uteri, I could trace the neck of the tumour entering within it, and having an equally firm attachment, as it were, around the whole circumference of its inner margin, the os internum itself being open to the extent of two inches in diameter, and being otherwise in a dilatable condition. Without withdrawing my right hand from the passage, I examined with my left the hypogastric region externally, and by this means satisfied myself of the absence of any intervening body corresponding to the uterine tumour. Having now no doubt as to the mass within the vagina consisting of the uterus in a state of almost complete inversion, I immediately grasped the organ, and by moderate but steady and continued compression, in the direction of the os uteri, manipulating with my fingers as occasion required, I succeeded, in the course of some fifteen or twenty minutes, in returning the whole mass within it. In endeavouring, however, to push the fundus up to its normal position, the resistance and accompanying pain were so great as to deter me from persevering, and I desisted from the attempt, contenting myself for the present with having returned the whole organ within the os tincæ. The poor woman appeared to experience immediate and great relief from what I had done, and expressed herself to that effect. Before leaving her I ascertained that the hemorrhage had ceased, and ordered cold applications in the event of its recurrence, and trusted her to the effects of an opiate and absolute quiet till I should visit her next day. The following morning I found her continuing apparently better; she had not slept during the night, but had felt tolerably comfortable. On examining per vaginam, however, I found the fundus uteri projecting a little beyond the os tincæ, which had contracted considerably since my previous examination; but I was able, with little difficulty to myself, and only trifling pain to my patient, to push it upwards to its relative position within the pelvis. Recovery was slow, but uninterrupted; and with the exception of slight occasional pain in the left ilium and both ankles, she is now in perfect health, and has menstruated naturally since the occurrence.

Mrs. F. is thirty-six years of age, somewhat above the average stature of females, of spare and relaxed habits of body, and has generally enjoyed good health. She has been married sixteen years, and has been eight times pregnant. Utero-gestation went on to the full period in the first six pregnancies, the first five children being born alive. In her seventh pregnancy she had an abortion at the third month of gestation, which happened about six months prior to the one under consideration. She states, that to the best of her knowledge of such matters, her sufferings during parturition have never been attended with any unusual severity, and that in no instance was there any undue force employed in removing the after-birth.

In this remarkable case there can be little doubt as to the accident having happened twelve hours previous to the time of the organ being returned. The immediate cause of its occurrence must have been the forcible contraction of the abdominal walls which play so important a part in the act of vomiting. According to Mrs. F., it was during the

violent retching that for the first time she was sensible of something falling down within her. Up to this period she had complained principally of hemorrhage and accompanying debility, but after the vomiting her sufferings were greatly aggravated, and continued to increase in severity, till the displaced organ was returned. The continued hemorrhage, which had been going on ten days previously, had produced a very relaxed state of the os uteri, which was no doubt greatly favoured by constitutional predisposition; and such a condition of the parts was but little calculated to offer resistance to the escape of the uterus, forced down, as it must have been, by the powerful action of the diaphragm and abdominal muscles on the contained viscera. The general symptoms presented by the case were of a similar character to those which have been usually met with in cases of inversion occurring as a sequel to parturition at the full time, with this difference, that they were exhibited in a less formidable degree than we should expect to find them in the latter circumstances, especially when the whole uterus and vagina have been inverted.

The history of Mrs. F.'s case affords a very instructive lesson on the importance of forming a correct diagnosis in all accidents of this description; for it is very evident that an erroneous estimate of the nature of the event may lead to such dangerous practice, as must almost inevitably prove destructive to the life of the patient. Indeed, there is too much reason to fear that mistakes under such circumstances have oftener than once led to fatal consequences. The principal source of embarrassment in the case under consideration, was the resemblance of the mass within the vagina to a polypus or other morbid growth from the uterine cavity, for its bulk was too great to lead to the supposition of its being the placenta at such an early period of gestation. After taking into account, however, the absence of the hypogastric uterine tumour, the shreds of membrane which were attached to the surface of the body in question, and especially its connexion and relations to the os uteri, along with the history of the occurrence and the concomitant symptoms, I had no hesitation in concluding that it was a case of inversion of the uterus, and in treating it accordingly.

ART. 84.—*Fatal Case in which the Cæsarean Section was performed on account of a Pelvic Tumour preventing Delivery.* By W. LYON, Esq., late Surgeon to the Glasgow General Infirmary.

(*Condensed from the London and Edinburgh Monthly Journal,* Dec. 1845, p. 885.)

A healthy young woman in labour for the first time, at her full period was found to have a tumour in the hollow of the sacrum. For two nights the pain had continued slight but frequent, her health was undisturbed, and on accurate examination, the pelvis, from one sacro-sciatic notch to the other, and from the junction of the sacrum with the coccyx to the brim, was occupied by a tumour the size of a child's head. It projected so far forwards at the brim that the two fingers placed side by side, and the one side directed forwards, and the other backwards, could, *with difficulty,* be passed between it and the pubes; and it diminished in size below, or receded so much into the hollow of the sacrum, that three or four fingers' breadth intervened between its inferior part, and the arch of the pubes. It was globular in front, and laterally, gradually

merged into, and apparently united with the pelvis; it felt all over very firm, at some parts superiorly, of osseous hardness, and at others obscurely elastic. Strong pressure on it occasioned pain, but whether in the soft tissues covering it, or in the body of the tumour, could not be ascertained. In various positions of the patient it felt quite immovable, though strongly pressed in every direction, and it could not be influenced by depression, elevation, or any other motion of the uterus and child. The rectum passed in *front* of the tumour, and the posterior part of the bladder touched its anterior surface. With some difficulty the os uteri could be reached, of course above the pubes and superior and anterior part of the tumour. The os was soft, oblong, in the transverse direction of the pelvis, dilatable to the size of a shilling, as it had been from the first, and was very slightly affected by the occasional pains.

The patient stated that she had never suffered any injury of the pelvis. Upon two or three occasions during the six immediately anteeedent years, she had suffered from inability to pass urine, which continued for several days, giving occasion to the use of the catheter. Mr. Lyon and Mr. Young the ordinary attendants, with other professional men, considered that the tumour was connected with, or sprung from, the pelvis, was probably osteo-sarcoma, and that the patient could not be delivered without breaking it down, or performing the Cæsarean section.

On the following day, the pains having been slight and frequent had produced no change; it was determined, that to break up the fœtal cranium would be attended with so much difficulty, even if practicable, that the death of the mother would almost inevitably follow from the necessarily protracted operation, consequent exhaustion, and unavoidable injury to the soft textures, and that it was impossible for the evacuated fœtal cranium, though compressed to the utmost, to pass between the pubes and the tumour. The child having been ascertained to be alive, the Cæsarean operation was performed as follows:—

The bladder having been with some difficulty emptied by the introduction of the catheter the preparations were in a few minutes completed. Whilst the patient lay on her back in bed, and a large fold of skin was held up over the lower half of the linea alba, the scalpel was pushed through the fold, and allowing the skin to resume its place, there was an incision six or eight inches long in the median line of the abdomen. A small portion of the tendinous tissue over the projecting fundus uteri was now carefully divided, and perceiving through the translucent peritoneum that no portion of intestine intervened between the membrane and the uterus, the abdominal cavity was opened, two fingers introduced, and held apart, to act as directors to the knife, and so as to feel if any of the abdominal contents were in the way; the knife was carried downwards to within half a hand-breadth of the pubes, and thus was obtained an incision through the entire parietes, of eight or ten inches in length. The whole was the work of a few seconds. The anterior part of the fundus of the dark red uterus being divided, the circular fibres contracted strongly, and drew the margins of the wound widely asunder; this, by a few touches of the knife, was deepened until the uterine cavity was entered; when, carrying the fingers as before, the incision in the uterus was made of nearly equal size to the wound in the abdominal parietes. There was little, if any, liquor amnii, the membranes

were quickly ruptured, and the limbs and body of the child taken hold of; but so rapidly and forcibly did the uterus contract around the head, that it was not until the left hand was slid down behind and below the head, that the child, which was crying vigorously, was able to be lifted up and extracted. The uterus was grasped as the head of the child was being withdrawn, when the placenta was almost instantly extruded and removed.

At this time portions of intestine protruded over each side of the abdominal incision, and were covered with soft towels wrung out of tepid water. Not more than three or four ounces of blood were lost. The intestines were returned, and the abdominal parietes brought together by seven or eight points of interrupted suture. She bore the operation well, which was completed in eight or ten minutes. Two grains of opium were administered immediately afterwards, and a similar quantity was ordered to be repeated until sleep was obtained.

On the following morning an unfavorable change was manifest, her aspect being haggard, sallow, and expressive of distress. She had not slept, had vomited, felt uncomfortable, and been restless. She was now perfectly sensible, very weak, cold, and exceedingly distressed; pulse small, soft, and rapid; abdomen free from pain, but tympanitic, and the bandage and shift were soaked with blood. On removal of the bandage blood oozed copiously from the lower part of the wound, but whether it flowed from the abdomen, or from the parietal vessels, could not be ascertained. A thick compress was placed over the source of the oozing which put a stop to it, but the patient got rapidly worse, and died 36 hours after the operation.

On post-mortem examination 48 hours after death, there was found no adhesion of the lips of the wound, no appearance of inflammation having existed; no blood in the peritoneal cavity; the uterus was about the size of a cocoa-nut; the wound was diminished by contraction of the organ to four or four and a half inches in length; its external margins were separated a quarter of an inch, and the internal were in contact, but not adherent.

Upon drawing aside the uterus, the brim of the pelvis, from the promontory of the sacrum to the symphysis pubis, was found almost entirely occupied by the superior surface of the tumour, there not being more free space (about three quarters of an inch) than permitted the open hand, held with its dorsal and palmar aspects anteriorly and posteriorly, to be pushed downwards behind the bladder. Upon *now* pressing the tumour strongly, and grasping it to ascertain its connexions, it felt *indistinctly* moveable, but could not be displaced. The vagina, so much elongated as to permit the os uteri to remain at the upper part of the narrow space between the pubis and sacrum, was therefore cut across, in order to obtain a better view of the tumour and interior of the pelvis; but, upon drawing the uterus upwards, the fundus was found to be held down by the left lateral ligament, and upon closer examination, the left ovarium could not be perceived. The enlarged and thickened left lateral ligament was traced downwards, when it was found to wind to the outside, and then behind the lower part of the sigmoid flexure of the colon, and superior portion of the rectum, where it was attached to the tumour filling the pelvis. Considerable traction was made, by taking hold of the uterus; but the

part to which the left lateral ligament was attached could not be brought into view. Guided by the stretched ligament the hand was passed behind the rectum, and behind and before the tumour, where, lacerating adhesions, and at the same time pulling by the uterus, the tumour suddenly, and with a clinking sound, slipped out of the pelvis.

It was of an irregular ovoid form, as large as the full-grown fœtal head, and of firm, almost cartilaginous, consistence. Upon dividing its thick cartilaginous parietes, several cysts, also with cartilaginous walls, were exposed, and likewise a considerable thickness of *solid*, homogeneous structure, probably the normal substance of the ovarium. The main bulk of the tumour was formed by a large cyst, filled with a mixture of adipocere-like matter, hair, bones, and part of the foot, of a seemingly full-grown fœtus, covered with normal integuments, and with two of the toes and their metatarsal bones attached. There was no means of ascertaining either the exact weight or measurements of the tumour. The cavity from which it had been withdrawn had well-defined limits, and was narrowest at the neck or entrance, much like a hernial sac. It was bounded posteriorly by the pelvic fascia, anteriorly by the rectum, and in front and at the sides of that intestine by the peritoneum, forming the meso-rectum. It appeared as if the ovarium, having slipped behind a fold or depression of the meso-rectum, had gradually fallen downwards between the two layers of that membrane, and pushed the rectum to the front. The tumour had been retained in the situation which it has been described as having occupied, by forming adhesions with the internal surface of the peritoneum forming the meso-rectum, and also with the surface of the pelvic fascia.

ART. 85.—*The Bark of the Prunus Laurocerasus in Amenorrhœa and Suppressed Menstruation.* By H. KASTNER.

(*The Northern Journal of Medicine*, Jan. 1846.)

The author first tried the efficacy of the drug upon a strong plethoric girl, 16 years of age, in whom, about a year previously, the symptoms of menstruation had appeared, but had latterly almost entirely ceased. She suffered at times, however, under considerable inconvenience, such as congestion in the head and chest, and also violent colics; these symptoms becoming much increased, the author tried many of the remedies usual in such cases, but all without effect. Dr. Kastner at length became acquainted with the use of this bark, and six days before the next periodic return of the symptoms, the patient was ordered to drink daily a pint of the decoction made with two ounces of the bark. Exercise and foot-baths were at the same time recommended, although these had been tried before without avail. On the expected day the usual disagreeable symptoms came on, viz. loss of appetite, borborygmi, frequent desire to pass urine, with a burning sensation during micturition, dragging sensation in the pelvis, with cephalic congestion; two days thereafter a mucous discharge appeared from the vagina, and on the third a diarrhœa, along with the catamenial flow, which continued moderately for four days. Her next period of menstruation was two days too late, and the next again three days too early; but after this the indispositions became perfectly regular. Two other similar cases are recorded with an equally favorable issue; and, lastly,

a case of suppressed menstruation in a girl of 18 years of age, in whom, after using the decoction for two separate periods of eight days each, the discharge was re-established. It is proper to observe, that in all the cases, exercise, foot-baths, and leeches, or cupping were also employed.

---

## SECT. II. THE DISEASES OF CHILDREN.

### ART. 86.—*On the Influence of Rachitis on Fractures in Children.*

By M. GUERSENT.

(*The Lancet*, from the *Clinique des Hôpitaux*, Feb. 7, 1846.)

From statistical researches, founded on a medium of 80 cases of fracture yearly, we have remarked that about a third of the fractures which we observe occur in rachitic children. The circumstances which predispose them to fractures are twofold: the anatomical structure of the rachitic bones, and the great weakness of rachitic children, which exposes them to frequent falls. The structure of rachitic bones varies according to the period of the disease. In the first period, the spongy tissue is gorged with blood, more especially in the extremities of the long bones. In the second stage, the vascular system is still more developed, the compact tissue softens, the medullary canal becomes larger, and the bones bend in various directions. In the third period the disease remains stationary, and then improves, the cellular structure becoming less vascular, and the bones regaining a certain degree of hardness. The predominant feature in these various states is extreme fragility of the bones. This fragility, however, is fortunately compensated for by the thickness of the periosteum in children generally, and more especially in rachitic children.

The symptoms of fracture in rachitic children are very different from those which are met with under other circumstances. There is no crepitation, owing to the softness; often no deformity, on account of the periostic covering; and when deformity exists, there is no means of distinguishing it from the curvatures that are so frequent in rachitic children. These are the only symptoms which enable us to recognize the fracture: 1st, abnormal mobility of the bones modified by the resistance of the periosteum; 2d, flexibility of the limb at the seat of the fracture. If the existence of a fracture is not recognized, or if a lengthened period elapses before the surgeon is called in, the periosteum may be ruptured, and then the signs of fracture become more apparent. There is then deformity, riding of the fragments, and even crepitation, when the general rachitic affection is not too advanced.

The symptoms of fracture persist a long while after the accident, even when it is treated properly. Fifteen days afterwards the fragments are generally still found moveable, whereas, in a healthy child at that time, consolidation has always taken place. Consolidation is thus always tardy, and the more so the more severe the general disease. In addition to the direct unfavorable influence of rickets, there are other morbid influences to which the patients are often exposed. Thus, they are frequently attacked with pneumonia, bronchial catarrh, and eruptive fevers, to which ricketty children are extremely predisposed, these diseases always length-

ening the treatment of the fracture. M. Guersent reduces the treatment of these fractures to the mere application of a roller-bandage applied to the limb, and three or four small splints placed at the seat of the fracture, the whole being again kept in place by another circular bandage. The splints must not be allowed to rest on the osseous protuberances, lest excoriations should follow; this is the more important, as the extremities of the long bones are morbidly swollen. If it is one of the inferior limbs that is fractured, the entire apparatus must be surrounded with a piece of oil-skin, owing to the circumstance of very young children often wetting their bed. M. Guersent does not approve of any other forms of apparatus, all kinds of padding or cushions being soon destroyed, and the starch bandage being soon softened, by the contact of the urine.

The general treatment ought to consist principally, as in simple rachitis, in a good and tonic alimentation. Some writers have latterly asserted that a substantial diet is not beneficial in rachitis; but this is an error, which may be explained by the circumstance of substantial food being sometimes given too suddenly to children who have previously been living on very low diet. The change should be gradual, so as to allow the stomach to become accustomed to the difference in the food.

ART. 87.—*Treatment of Umbilical Hernia in Infants.*—Although these cases are frequently cured spontaneously, or with very little artificial aid, they sometimes resist the ordinary methods. Dr. Meynier has for many years employed small agglutinative bandages, drawn very tight over the umbilical opening, the bandages being found sufficient without the usual compress or cushion; the latter has the inconvenience of keeping the opening dilated and preventing its obliteration.

*Revue Médicale*, Feb. 1846, p. 294.

ART. 88.—*The Resuscitation of Still-born Children.*—[We find the following remarks on this subject appended to Dr. Mackness's case of ova expelled entire.] Dr. Blundell, in his Principles and Practice of Obstetrics, says,—

"Of the various practices recommended for the resuscitation of still-born children, I may observe, there are two on which I place a principal reliance, and which I would recommend you to urge with diligence, not, however, excluding the subordinate remedies, and these two remedies are,—artificial respiration and the warm-bath." "The artificial respiration should be diligently tried, indeed, if this and the warm-bath fail us, I know of no other resuscitants in which we can confidently rely." For my own part, says Dr Mackness, I have always found a shock from a dash of cold water more efficacious in rousing the vital powers than warm water, but where warm water is ready at hand, I have found a sudden dash of cold water, alternately with a plunge into the warm bath, more efficacious than either alone; and, in my opinion, this plan, combined with friction and artificial respiration, kept up for a considerable time, will give the greatest chance of success. In this case, cold water only was at my command, for it was in the middle of the night, and labour had unexpectedly come on. I alternately dashed cold water over each of the infants, wiped them dry, and, while the nurse was em-

ploying friction with the warm hand on one, I was inflating the lungs of the other. The same process was employed several times on each, until I had the great satisfrction to hear one of them utter a faint cry, the other a sob; still continuing my efforts, they both cried out lustily and are now living.

This is an instance where complete success attended persevering efforts to resuscitate still-born children, and may well encourage others not to relax their efforts until a probability of success no longer exists.

*Lancet*, Feb. 14, 1846.

ART. 89.—*Amputation of the Limbs in Utero.*—A true solution of the enigma respecting deficiency of the limbs of new-born infants is afforded by Dr. Montgomery's views on the subject, and a preparation has fallen into Dr. Beatty's hands which very beautifully illustrates that gentleman's opinions, viz. that certain bands of lymph, or a coil of the umbilical cord, may envelope one or more of the limbs, producing a gradual amount of constriction, sufficient ultimately to effect a complete amputation of the limb of the fœtus in utero. Dr. Montgomery's doctrine is strictly confirmed by a preparation in which the fœtus was one of four months; round the left arm was a coil of the umbilical cord, on removing which the arm was seen almost completely severed across, and the groove obviously corresponding to the constriction of the cord.

*The Dublin Medical Press*, Dec. 24, 1845, p. 401.

ART. 90.—*Fractures in the Fœtus during Labour.*—In a thesis published by Meine, "De Osteomalacia Pelvis et ejus in partum Actione," there is recorded an instance where, in consequence of deformity of the pelvis, the right parietal bone of the fœtus presented a deep impression, and the cranium was fractured in several places. The preparation is placed in the Obstetrical Museum of Marburg.

*The Northern Journal of Medicine*, Feb. 1846.

ART. 91.—*Hare-Lip.*—M. Roux mentions a case in which little blood was lost during the operation, but what there was remained in the mouth, the infant being seven months old, swallowed it, and syncope followed. This is always a very serious accident in so young an infant, and M. Roux believed it dead. Cold affusion and other measures were ineffectually resorted to, after which a female catheter was introduced quickly into the larynx. A large clot of blood which had got into the larynx during deglutition, and occasioned asphyxia, was displaced. Asphyxia had been mistaken for syncope. Recovery immediately took place.

*Gazette des Hôpitaux*, Jan. 29, 1846.

ART. 92.—*Case of Sanguineous Apoplexy in a Child.* By. W. C. WORTHINGTON, Esq., F.R.C.S., Senior Surgeon to the Lowestoft Infirmary.

(*Provincial Medical and Surgical Journal*, April 22, p. 180.)

James Raven, aged eleven, of a rather spare habit, was reported to have enjoyed a tolerably good state of health, and had never previously suffered from any cerebral affection. On Saturday, the 13th of December last, he had taken his breakfast as usual, and soon afterwards left his

home in apparent good health for the purpose of keeping sheep. At ten o'clock, a.m., he was found in a state approaching to insensibility, and only able to articulate very feebly that he felt extremely ill. After being removed home, I found him with the following symptoms:—Hands and feet of an icy coldness, pulse at the wrist scarcely perceptible, countenance pale and collapsed, complete insensibility, breathing stertorous, frothing at the mouth, the right pupil permanently dilated to its full extent, the left contracted to a pin's point, convulsions occurring at intervals of about every ten minutes, the paroxysms lasting three or four. There appeared to be little doubt that the brain had sustained a severe shock, but as to its precise nature, an opinion was not ventured. The extreme depression of the vital power, and evident sinking condition of the patient, forbad any kind of depletion; on the contrary, pediluvia, and mustard poultices to the region of the heart, &c., were promptly employed, with a view, if possible, of inducing reaction. These means, however, failed, and death took place at eight o'clock the same evening, during a convulsion fit.

A report was circulated that the patient had perished from the combined influence of inanition and cold, in consequence of which an inquest was held on the body, and a post-mortem examination demanded.

*Inspection—Chest:* Heart and lungs healthy. *Abdomen:* The viscera generally presented a healthy appearance; the stomach contained a large quantity of undigested raw turnip, without any admixture of other food; the small intestines were loaded with the same vegetable matter. *Brain:* On removing the skull cap, the vessels ramifying upon the surface of the brain were more vascular than usual; the right ventricle was filled with extravasated blood, which had insinuated itself into the posterior cornu; the substance of the brain surrounding the ventricle was lacerated to a considerable extent; in all other respects it was perfectly healthy. The vessel from whence the hemorrhage proceeded could not be satisfactorily traced.

## Art. 93.—*Pathological Observations on Tubercular Meningitis.* By Dr. Hamernjk.

(*Prag. Viertel Jahr.* II. 2. *Schmidts Jahrbucher*, 46 Band, Heft 3, 1845.)

[The following observations form the most practical portion of a long article on the general pathology of tuberculosis.]

Meningeal tubercles are most frequently observed in the meshes of the pia mater, at or near the base of the brain. They are seldom seen to occupy the convexities of the hemispheres. They present themselves in the first instance as small transparent granulations, which eventually become opaque and yellow. As a general rule, meningeal tubercle is a secondary affection, being seldom observed unaccompanied by tubercular deposition in other organs. It is an extraordinary fact, however, that it is rarely seen in conjunction with pulmonary tubercle.

The disease occurs chiefly in children, but may show itself at any period of life. The following are the principal symptoms in the former class of patients:—Pain in the head, fever, vomiting, delirium, painful contractions of the cervical muscles, with contracted and subsequently dilated pupils. There is considerable tension of the abdominal parietes,

more particularly in the region of the spleen; the bowels are costive, the pulse is at first slow, but afterwards quiek and variable in foree. The external appearance of the patient bespeaks the presence of the tubercular diathesis.

The headache, which is principally confined to the forehead, is one of the most eonstant symptoms, frequently preceding the appearance of the other symptoms by many days, or even weeks. It is sometimes so intense as to render the patient insensible. This pain is not believed by the author to be caused by the presence of tubercular matter itself, but by the hyperæmia and albuminous exudation, which it produces by irritation of the meningeal tissues. The pain is soon followed by fever, either eontinuous, or, as is frequently the case, of a remittent type. The obstinate vomiting which is sometimes observed is accounted for by the author on the supposition that the origin of the nervi vagi are compressed or irritated by the products of the meningeal inflammation. The delirium is moderate at the eommencement of the disease, but increases as it progresses, until it is replaeed by eoma. The painful eontractions of the cervical muscles is a constant and very charaeteristic symptom, and is no doubt to be attributed to the irritation of the nerves at the base of the brain. In order to ascertain the presence of this symptom, the author recommends that the patient's head should be moved from side to side, watching at the same time the expression of his countenancc. In some instances the spasmodic contractions extend to various parts of the trunk, giving rise to tetanic or epileptie convulsions.

In the commencement of the disease the countenance is suffused, the eyes injected and acutely sensible to light, and the pupil is eontracted. As the disease progresses, the pupil becomes dilated, and vision is frequently entirely abolished. The coma, which in most eases eloses the scene, appears with different degrees of intensity; it may be intermittent in the first instanee, and alternate with delirium; but it becomes permanent previous to death.

The tuberculous affection of the cerebral membranes has sevcral distinct periods of development. It first appears as transparent granulations in the meshes of the pia mater, which afterwards become yellow. In this eondition they do not give rise to any pathognomonic symptoms; sooner or later, however, a fresh deposition of granulation takes place, and extends to the space in whieh the cerebral nerves take their origin. The interior of the ventricles likewise becomes affected by contiguity, and the hydrocephalic aetion thereby established induees a disturbance of the eerebral functions, with serous infiltration and softening of the central parts. As long as the ventrieles remain intact the tubercular affeetion may remain inaetive, and if tuberculization of othcr organs does not ensue, he may entirely recover.

The author considers that it is very difficult, or almost impossible, to distinguish the two first periods of tubercular meningitis (viz. the period of tubercular deposition and that of inflammation) during life; but the last, or hydrocephalic, stage is more readily recognized. When this latter eondition occurs we have a loss of sensation and motion in the limbs, blindness, with an apparent projection of the eyeballs, and more or less completc stupor. As long as these symptoms are absent there is no

cause for despair; even coma is not necessarily a fatal symptom, as it may occur independently of effusion.

It is of great importance to watch for the first appearance of tubercular meningitis. When a child, which has for some time appeared to lose flesh, and especially if he have previously had scrofulous enlargement of the glands, becomes the subject of pains in the head, we must be on our guard; but other symptoms portend the appearance of tubercular meningitis; in the case of robust children, headache is not of so serious import, as in them it may arise from many other causes. Convulsions, tossing of the hand above the head, and screaming are not specially connected with the tubercular affection, as any kind of exudation at the base of the brain may give rise to the same symptoms; but it is to be remembered, that in nineteen out of twenty cases deposition in this spot is of a tuberculous nature.

ART. 94.—*Medullary Sarcoma of the Prostate Gland in a Child nine months old.* By Mr. BREE, Stowmarket.

(*Condensed from the Provincial Medical and Surgical Journal*, Feb. 18, 1846, p. 76.)

There was complete retention of urine, although the child made voluntary efforts at expulsion, and on examination per rectum a large tumour was discovered attached to the neck of the bladder. The tumour increased rapidly in size, pressing upon the rectum, and preventing the passage of fæces, and ultimately presented itself through an ulceration in the sphincter ani, of about the size of a shilling. The child's health gave way, and it died forty-four days after Mr. Bree was first consulted. On post-mortem examination the tumour was found to be an enormous enlargement of the prostate gland. Externally it was white and shining, and irregular on its surface; when, making an incision into it inferiorly, it was found to consist of a thick cyst filled with a vast number of cells, which readily broke down, and contained a substance, having exactly the consistence, colour, and physical characters of the medullary substance of the brain.

Mr. Bree has been unable to find a single analogous case in so young a subject. The use of the catheter was the only palliative treatment that could be adopted.

# REPORTS

ON THE

# PROGRESS OF THE MEDICAL SCIENCES,

*January—June* 1846.

The intention of the following Reports is to pass in review the principal additions to each department of Medical Science, which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful, will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each Report, to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

# I.

# REPORT ON THE PROGRESS OF PRACTICAL MEDICINE, PATHOLOGY, AND THERAPEUTICS.

BY THE EDITOR.

---

[The figures in brackets refer to corresponding Articles in the Abstract.]

---

## PART I. GENERAL PATHOLOGY.

### § I.—*Diseases of the Blood.*

1. *Venosity.*—Under the title "Venosity" Dr. Puchelt* describes a condition of the circulating fluid, which, although it is one of very common occurrence, has generally attracted attention only from its ulterior results upon the animal economy. This "venous cachexia," as he elsewhere terms it, which is no more nor less than a deficient arterialization of the blood, is principally observed in persons of the melancholic and leuco-phlegmatic temperaments, in the aged, and in those who have been exposed to particular habits of life. Several causes of this state are enumerated, they may, however, for the most part be referred to a single pathogenic condition,—the deficient inhalation of oxygen in proportion to the requirements of the system. The effects of the circulation of imperfectly arterialized blood are witnessed in the functional or structural disturbance of every organ of the body. In the brain it gives rise to congestion, followed by headache, stupor, and hemorrhagic or serous effusions; in the stomach it originates dyspepsia in all its modifications. The diagnosis of the "venous" state is made out by the author as follows. The cutaneous veins are turgid and firm, the pulse full and slow, unless the heart be oppressed when it is small and labouring, the face is livid or pale, and the extremities cold. The individual is fat and indolent. The stools infrequent, and the vision imperfect. The treatment is chiefly hygienic, temperance, exercise, and the use of fresh vegetables being particularly enjoined.

2. *Purulent Absorption—Pyæmia.*—Subsequently to the date of our last Report the subject of purulent contamination of the blood under its various aspects has been commented upon by Drs. Rayner,† Hasse,‡ Aran,§ and Tessier.‖ The observations of the first-named writer are contained in an

* Das Venensystem in seinen krankhaften, noticed in Brit. and For. Med. Rev. Oct. 1845. † Medical Times. 1846. ‡ Anatomical Description of the Diseases of the Organs of Circulation and Respiration. Translated by W. E. Swaine, M.D.

§ Archives Générales, Feb. 1846. ‖ Gazette Médicale, 21 Mars, 1846.

Essay which extends through several consecutive numbers of the 'Medical Times,' and in which the subject is illustrated by the detail of a series of well-devised experiments. The author's conclusions in respect to the formation of consecutive abscesses are precisely similar to those of Dr. Budd, mentioned in our last Report, namely, that they are the result of local inflammation and not of gradual accumulation of pus conveyed by the blood from the spot of original suppuration. The same view is supported by Hasse, and by Lebert ;* it is, however, opposed by M. Aran, though apparently upon insufficient grounds. Lebert, who has minutely examined the formation of these abscesses, has been able to ascertain the following gradations :—

1. A local capillary injection, the blood more or less coagulated, but exhibiting no pus-globules. 2. At the centre of this vascular reticulation there is next observed a small yellow point, which is, in fact, a drop of pus. 3. The purulent collection has increased, but is still simply infiltrated in the tissues. 4. The intervening areolar tissue breaking down, the pus collects into an abscess.

Lebert does not appear to believe that the local inflammation is excited in the first instance by globules of pus arrested in the capillary vessels, as is supposed to be the case by Budd, Hasse, &c., but that it originates in a general morbid diathesis.

The manner in which pus gains access to the circulating fluid is one of the most important questions connected with this subject, and is considered by Hasse† at some length, Two opinions appear to be equally supported by pathologists ; one, that the admixture of pus with the blood is the result of secretion from the inflamed membranes of the veins in which it appears ; the other, that is the result of a direct metamorphosis of the blood itself. The latter has the sanction of Hasse, as well as of Henle and Vogel ; the former is held by Gendrin and M. Donnè, and, as is mentioned in our last Report, (vol. ii, p. 197,) appears to be warranted by the researches of Dr. Bennet, of Edinburgh.

In the treatment of purulent absorption under whatever circumstances it may occur, M. Tessier‡ recommends general or local bloodletting, and the antiphlogistic treatment in the outset, and afterwards the exhibition of the tincture of aconite, with which, he states, that he has met with so much success, as almost to induce him to consider it a specific. This author likewise employs the medicine as a prophylactic in puerperal women, and after accidents, if circumstances render phlebetic complication probable.

## § II.—*Zymotic Diseases.*

3. *Continued Fever, Etiology of.—Famine and Fever.*—Although the close connexion which subsists between deficiency of nutriment and the occurrence of fever has been long familiar to practitioners engaged among the poor, the subject has never been so pointedly brought before the notice of the profession as in a recent pamphlet by Dr. Corrigan,§ of Dublin. It is there demonstrated by the analysis of the principal epidemics which have visited Ireland during the last hundred years, that whatever might have been the variation in the important features of their history, that one condition was invariably present, and that condition was famine.

The truth of this assertion is distinctly shown in the following summary of events. In 1728, an epidemic appeared, which lasted four years ; it was

* Physiologie Pathologique, tom. i, p. 288. † Op. cit. 215.
‡ Op. cit. § Famine and Fever, as cause and effect. Dublin, 1846.

preeeded by bad harvests, and aceompanied by distress, which reaehed even the middle elasses. In 1734, after another unproductive harvest, fever again set in, and disappeared in 1736, when an abundant erop was gathered. In 1739—40, provisions were dear, and remained so until the close of the year 1741; during this period there was every variety of weather and temperature, but fever eontinued unabated. In the following year, when bread was unusually eheap, there was, the author states, scareely a fever ease to be found among the poor. The year 1797 and four consecutive years were remarkable for scarcity, and in 1798 the horrors of eivil war were added to those of want. In this pcriod fever raged to a fearful extent, and eontinued unabated until, in the year 1801, a most abundant harvest eauscd it to decline. The years 1817, 18, and 19, were in most of their featurcs similar to the preceding:—the corn rotted uneut upon the ground; the potatoes did not ripen, and the turf was spoiled. During this period, out of a population of six millions, one million and a half were attaeked with fever, and 65,000 died. The last epidemie to which Dr. Corrigan refers is that of 1826, it is similar excepting in intensity to those alrcady mentioncd.

These remarkable facts appear to justify the author's eonelusions that epidemie fever has not, in thc ease of Ireland, depended on elimate or season, as it raged through heat and eold, through wet and drought; nor upon changes in the eondition of the poor in respect to cleanliness, ventilation, &e.; neither upon eontagion alone; but that as famine is invariably found preceding and aecompanying the fever, we are justified in marking out this condition as its great eause.

4. *Epidemics.*—The periodieal press of the last few months eontains the description of the epidemie oecurrence of fever, by Drs. Wardell,* Watson,† and Shearman.‡ That deseribed by Dr. Wardell is the remarkable and new form of fever which appeared in Seotland in 1843-44, and the history of which had previously been fully given by Drs. Alison, Cormack, and others.

The fever, thc history of which is related by Dr. Watson, oeeurred in Liverpool at the close of 1844, and is considered by him as in most respects identieal with the Scotch epidemic; unlike the latter, however, it did not break out in the first instance among the poor, and eould not, therefore, in the author's opinion be ascribed to destitution. It was not obscrved to be contagious. The loeal eomplications varied aceording to the locality; in the higher parts of the town thoracic affections prevailed, in the lower and less ventilated, diarrhœa was generally present.

The epidemic rccorded by Dr. Shearman, of Rotherham, seems to have originated in miasmata evolved by ill-regulated sewers, and the simultaneous opening of numerous graves. A eurious feature in the disease was that it attaeked almost exelusively in the first instanee servant maids and others who were exposed to the early morning air. The typc of fever appears to have been ordinary typhus with bronchial complication.

5. *Post-Febrile Ophthalmia.*—Several writers, among whom we may mention Drs. Jacob,§ Maekenzie, and Anderson,‖ have treated of a peculiar and destruetive inflammation of the eyes eonsecutive to fever. The period at whieh it oeeurs is stated by Dr. Anderson to havc been during the fever, in 10 out of 135 eases, at the eommencement of convalcseence, in 35; a fortnight later, in 29; at the end of a month, in 31; and within six months, in the same number. His treatment consisted in bleeding and mereury, that followed by Dr. Jacob in leeehing, antimonials, and turpentine.

* Med. Gazette, Feb. 1846.
† Prov. Med. Journ. March, April, 1841.
‡ Med. Gazette, Feb. 1846.
§ Dublin Med. Press, Jan. 14, 1846.
‖ Month. Journ. of Med. Scien. Oct. 1845.

6. *Nephritic Complication in Typhus.*—Dr. Aldridge* speaks of an affection of the kidneys, which occasionally supervenes during fever. Like other complications this affection is frequently latent; it generally arises during the period of prostration, and is indicated, according to the author, by scanty high-coloured, and transparent urine, with torpor of the cerebral functions. The urine is neutral or alkaline, and deposits no sediment on cooling. The same condition of urine is also noticed by Dr. Corrigan, in an admirable clinical lecture on typhus fever, for which the reader is referred to Art. 1.

7. *Yellow Fever.—The Eclair.*—An article appears in the 'Edinburgh Medical and Surgical Journal' of last January, in which the writer inquires whether the fever which proved so fatal to the crew of the ill-fated Eclair, was true yellow fever, or that variety of typhus known under the name of "ship fever." After reviewing the mode of origin of the fever on board the Eclair, and contrasting it with the generally-received opinion that true yellow fever is strictly endemic, and is never transmitted by contagion, the writer comes to the conclusion that the disease in question was not genuine yellow fever, but the form of fever described by Dr. Wilson as liable to break out in ships constructed of unseasoned timber, especially if they are not kept dry and clean.

A communication from Mr. Birtwhistle† describes the yellow fever as it appeared on board the Volage. In the treatment of it calomel was found useful, and quinine acted with the greatest benefit as soon as slight ptyalism had been induced.

8. *Remittent and Intermittent Fevers, Quinine in.*—The most interesting recent information connected with miasmatic fevers, has reference to the mode of exhibiting quinine in the treatment. Two of the most important papers upon the subject will be found among our Abstracts (arts. ii and iii). The common practice with British practitioners is to give the remedy in small repeated doses of grs. ij to iv, during the intermission, and its exhibition during any period of the paroxysm has been regarded as hazardous. The evidence afforded by the experience of the American and Italian physicians, on the contrary, goes to prove, not only that large doses are more efficacious and economical, but that they may be given during the fit with perfect safety. In regard to remittent fever, the testimony of Drs. Upshur, Byrne, and Van Buren is particularly strong. The practice of Dr. Upshur is to exhibit quinine in the paroxysm irrespective of quantity until the patient complains of *noises* and *buzzing* in the ears, which symptoms he regards as indicative of the entire subjection of the system to the influence of the remedy. He farther states that he has never lost a patient when these effects have been produced by a moderate quantity of the medicine; but that where unusually large doses fail to induce them, the case generally proves fatal. The author's practice is to give it in ten-grain doses every hour until the above-mentioned symptoms supervene.

Dr. Byrne,‡ in reference to the use of quinine in remittent fever, expresses his regret that he had often suffered the patient to be worn down by repeated paroxysms rather than have recourse to quinine, because no decided intermission could be obtained. He subsequently found that quinine might be exhibited with the greatest advantage even in the hot stage. As regards the dose, this writer observes that in remittents of ordinary severity, it is a matter of indifference what dose is employed, provided that 10 or 20 grains are introduced into the system within a certain number of hours before the expected exacerbation; but in the severer forms of fever, he considers that the

* Dublin Hosp. Gaz. Dec. 15, 1845. † Lancet, Jan. 3, 1846.
‡ Boston Med. and Surg. Journ. July 23, 1845.

dose is no longer a matter of choice, but that the quantity above specified should be given in one or two doses at the utmost.

Van Buren exhibits from 20 to 25 grains at a dose, as soon as the skin becomes moist, and repeats it at the end of from four to eight hours.

In the treatment of intermittent fever, the advantage of decided doses of quinine is equally evident. Upshur gives it in five-grain doses every two hours, until noises in the ears supervene. Van Buren exhibits 15 or 20 grains from six to twelve hours before the chill is expected. In about two thirds of the cases thus treated he found it unnecessary to repeat the dose, and he is unable to remember an instance in which he was obliged to exhibit a third dose. (Art. 2.)

Dr. Graves* advises a single large dose at the commencement of a fit, and then to suspend it until the occurrence of another. He believes that if it be given while the fits are off, its curative effects are diminished, and the system becomes as it were so accustomed to it, so that when the disease again requires it, it no longer exerts its anti-periodic agency.

Lest it should be supposed that these large doses of quinine may be productive of mischief, it may be mentioned that Van Buren states that he has never witnessed any ill effects from them, but has found the unpleasant consequences attributed to quinine as readily produced by two-grain as by scruple doses. Similar testimony is given by Dr. Byrne, Dr. Satterle,† and Dr. Porter.‡

Dr. Chambers, of Colchester,§ calls attention to the advantage of removing visceral congestion and obstruction previous to the exhibition of quinine. This writer is likewise in favour of large doses, but does not agree with Dr. Graves in the opinion that the system becomes so habituated by small doses as to resist the agency of the medicine.

9. *Nitrate of Potash in Intermittents.*—M. Briquet‖ has recently tried the powers of nitrate of potash in the treatment of intermittent fever with the following results:—In three cases the paroxysms ceased after the first dose of the medicine; in two cases the paroxysms yielded more gradually. In one case only was there a relapse. The dose of the nitrate was from one drachm to one drachm and a half daily, dissolved in mucilage, and given during the six hours succeeding a paroxysm.

10. *Relapse periods.*—Dr. Graves¶ believes that he has discovered that the law which regulates the periodicity of intermittent fevers does not apply to the succession of paroxysms alone, but is extended to the free intervals between them. He was led to the observation of this law from watching a quartan ague of unusual obstinacy, which recurred at various lengthened periods, after having been apparently cured. It was ascertained, by a careful examination of dates, that on several occasions the paroxysms renewed themselves after an interval of several weeks, at precisely the day and hour at which the fit would have been due had the disease progressed uninterruptedly. [This fact, if it be one of general application, is a curious exemplification of the tenacity with which the conditions of periodicity lay hold upon the system.]

11. *Miasmata.*—Dr. Salvagnoli-Marchetti,** who has had great experience in the intermittents of the central Italian States, believes that the virulence of miasmatic effluvia is greatly enhanced by the mixture of salt and fresh water; in fact, that salt-water marshes are more prolific in agues than those of fresh water only. He affirms that the most insalubrious of such marshes

* Dublin Quarterly Journ. Feb. 1846. † Amer. Journ. Med. Scien. Oct. 1845.
‡ Boston Med. Journ. July 9, 1845. § Prov. Med. Journ. March 18, 1846.
‖ Gaz. Méd. and Prov. Med. Journ. April 1, 1846. ¶ Dublin Journ. Feb. 1846.
** Statistics of the Maremna, Brit. and For. Rev. Jan. 1846.

may be rendered healthy by the mere exclusion of the sea, and instances one spot, near Varregio, now selected as a watering place, which was at one time uninhabitable. He explains the fact of the greater unhealthiness of marine marshes upon the supposition that marine deposits undergo the putrefactive process more rapidly than those of purely fresh water.

A short communication on the relation of the dew-point to malaria, by Dr. Garduer, appears in the American Journal of the Medical Sciences for January.

12. *Measles.*—In a clinical lecture upon the exanthematic fevers, Chomel* maintains that in certain cases, in which it may be difficult to decide whether the eruption is rubeolar or scarlatinous, the doubt may always be dissipated by an examination of the sputa, which in measles is nummular, and resembles the expectoration of phthisis, with the exception that in the latter disease the sputa float in a thick mucous fluid, while in the former the fluid is colourless and transparent.

13. *Scarlatina.*—The length of time during which the contagious principle of scarlatina may lie dormant is strikingly illustrated in a case related by Dr. Duncome,† of the Bahamas, in which it was ascertained by infallible evidence to have been latent for eleven weeks.

A case of scarlatina, in the course of which croup arose as a complication, is related by Dr. Kennedy.‡ The case had all along been of the most unpromising appearance, the eruption being tardy, and accompanied by great vascular congestion and collapse. After the eruption had declined an abscess formed in the cervical fascia, and subsequently symptoms of croup declared themselves. From these the child recovered, but he sunk eventually from irritative fever. After death an extensive abscess was discovered behind the pharynx. The author denies that the croupy symptoms were connected with the abscess, but as the larynx and trachea were perfectly healthy, that would appear to have been more than probable.

Schönlein§ notices a peculiar phenomenon occurring in the convalescent stage of scarlet fever, which is worthy of notice. This consists in an exfoliation of the urinary epithelium, analogous to that which takes place in the external integument. The urine in this condition of things exhibits a mucous deposit, which may be seen by the microscope to consist almost entirely of epithelium-scales. Schönlein is of opinion that the exfoliation is the predisposing cause of the scarlatinous dropsy, and for this reason does not pronounce the patient safe until not only the cutaneous but the urinary desquamation also has ceased.

A brochure has been recently published by Mr. Isaac Browne,‖ for the purpose of recommending the use of distilled vinegar, in ʒj doses, in the treatment of scarlatina. Independently of the beneficial effects attributed to it during the progress of the disease, this medicine is supposed by the author to prevent the subsequent anasarca, as he states that since he has adopted the specified plan he has never met with an instance of this sequela. Similar testimony is also afforded by Mr. Hunter, of Margate. Another element in Mr. Browne's method of managing scarlet fever, and one which strikes us as of more importance than the acid, is his practice of applying a strong solution of nitrate of silver to the tonsils as soon as ulceration, or even redness, displays itself, by which he is enabled to check in limine one of the most dangerous complications of the disease. The same proceeding is strongly recommended by Dr. Chapman¶ and Velpeau, although both give the preference to the

* Gaz. Méd. Mars, 1846.
† Reported in Lancet, March 21, 1846.
‡ Dublin Med. Press, March 25, 1846.
§ Quoted in Med. Gaz. March, 1846.
‖ On Scarlatina, &c., Lond. 1846.
¶ Lectures on Eruptive Diseases. Philadel. 1845.

application of burnt alum in powder. The principles of the treatment, however, are obviously the same.

14. *Report on the Plague.*—The Royal Academy of Medicine has received an important report on the plague. A committee of eleven members had been appointed, composed of MM. Prus, president, Ferrus, Begin, Dubois, Adelon, Dupuis, Londe, Melier, Pariset, Royer Collard, and Poiseuille. The following are the chief conclusions at which the committee has arrived.

" 1. That plague has been seen to arise spontaneously, not only in Egypt, in Syria, and in Turkey, but likewise in a great many other countries of Asia, Africa, and Europe.

" 2. In every country in which the plague has been observed to arise spontaneously, its development may with reason be attributed to determinate causes acting on a great portion of the population. These causes are, particularly, dwelling on alluvial soils, or on marshy lands near the Mediterranean Sea, or near certain rivers, such as the Nile, the Euphrates, and the Danube; low, badly-aired houses; a warm and moist air; the action of animal and vegetable matter in putrefaction; unwholesome and insufficient food; and great physical and moral suffering.

" 3. All these causes being united every year in Lower Egypt, the plague is endemic in that country, where, almost every year, it is seen under the sporadic form, and every ten years under the epidemic form.

" 4. The progress of civilization, and a general and constant application of the laws respecting good health, can alone supply us with the means of preventing the development of spontaneous plague.

" 5. When the plague has raged with violence in Africa, in Asia, and in Europe, it has also shown itself with the principal characters of epidemic maladies.

" 6. The sporadic plague differs from the epidemic plague, not only on account of the small number of persons attacked with the malady, but particularly because it does not present the character belonging to epidemic maladies.

" 7. The plague is propagated in the same manner as most other epidemic maladies, that is to say, by the air, and independently of the influence which persons attacked with the plague may exercise.

" 8. The inoculation of the blood drawn from the veins of a person affected with the plague, or of the matter of a pestilential bubo, has furnished but equivocal results. The inoculation of the serous matter drawn from a gangrened ulcer of a person suffering under the plague has never given the plague; it is not, therefore, true that the plague can be transmitted by inoculation.

" 9. An attentive and strict examination of the facts contained in scientific works establishes, on the one hand, that in the focus of the epidemic the immediate contact of thousands of pestiferous subjects has remained without danger to those who have suffered it with free air or in well ventilated places; and, on the other hand, that no strict observation demonstrates that the plague can be communicated by contact alone with the diseased.

" 10. Numerous facts prove that the clothes which have been worn by infected persons, when made use of by other persons, have not communicated the disease, although they had not undergone any kind of purification.

" 11. That the conveyance of the plague by means of merchandize, in countries where the plague is endemic or epidemic, has been in no way proved.

" 12. That the plague may be conveyed into epidemic places by the vapours which the infected exhale.

" 13. That it is an incontestable fact that the plague may be conveyed out

of epidemic localities, be it on board vessels at sea, or in the lazarettos of Europe.

" 14. Nothing proves that the pest is transmissible out of epidemic places by the immediate contact of the infected.

" 15. It is not proved that the plague is transmissible out of epidemic places by clothes which have been used by infected persons.

" 16. It is in nowise proved that merchandize can convey the plague out of epidemic places.

" 17. The plague may be transmitted out of epidemic localities by means of miasmatic infection—that is to say, by the air being charged with pestilential vapours.

" 18. That the plague is more or less transmissible, according to the intensity of the epidemic; according as it may be in its first, second, or third stage; and, lastly, according to the organic dispositions of the individuals submitted to the action of the pestilential vapours.

" 19. That infected persons, by rendering the air of the localities in which they reside unwholesome, may create a focus of pestilential infection capable of transmitting the disease.

" 20. That such places may retain the infection after the infected persons have been removed.

" 21. That the infection, once established on board a vessel by the presence of one or more infected persons, may be conveyed to great distances.

" 22. That the moving centres of infection cannot become the cause of secondary centres, and consequently of an extensive propagation of the malady, except when they encounter, in the countries to which they are transported, the necessary conditions to the development of the plague.

" 23. That the usual period of the incubation of the plague is from three to five days; that the length of the incubation appears never to have exceeded eight days.*

## § III.—*Accidental Productions.*

15. *Cancer.*—The present semestrial period has been distinguished by the appearance of a work upon the pathology and treatment of cancer, which may fairly claim to be one of the most important treatises upon the subject extant. We allude to the recent publication by Dr. Walshe.†

The definition of cancer adopted by the author is, that it is "an infiltrating growth, occupying a certain position among adventitious blastemal formations." By the term "blastema" is meant the fluid in which cells are generated, destined either to add to the natural growth of tissue or to form anormal products. The cancer-cell differs from others in the power which it possesses of infiltrating the tissues in which it originates, and of converting them into a structure analogous to its own.

The body of the work is divided into two parts, the first of which considers cancer in general; the second describes the disease as it affects particular organs. The first chapter contains a most faithful anatomical description of the several varieties of cancer, of which the author, in accordance with the usual opinion, admits three, the *encephaloid*, *scirrhus*, and *colloid*. The second chapter is occupied with the chemistry of the disease. Cancer is declared to be an albuminous protein formation, with a mixture of fibrin and casein; the blastemal fluid is presumed to be liquor sanguinis impressed with some unknown chemical habit.

* From Prov. Med. Jour. April 15, 1846. See also Archives Générales, Avril, 1846.

† Nature and Treatment of Cancer, London, 1846.

The third chapter is one the most interesting in the volume, containing the origin, growth, and properties of the cancer-cell. Passing over the more obsolete theories of the parasitic and hydatid origin of the cell, the author notices in turn the opinion of Hunter, that cancer originates in mechanical injury; that of Wenzel, who attributed it to inflammation of a simply indurated part; and of Dr. Hodgkin, who makes it to depend upon simple or compound encysted structure. He next examines Cruvelhier's theory, that cancer matter is deposited in the capillary veins; and that of Carswell, who gives to it a threefold origin—1, the molecular structure of organs; 2, the free surface of secreting membranes; 3, the blood itself. The latter is distinctly denied by the author, not that he doubts the presence of cancerous matter in the blood, but only that it originated there.

With this cursory glance of previous theories, he introduces his own views upon the pathogeny of cancer, and in order to give these the fullest development he examines successively—1, the nature and properties of the blastemal fluid; 2, the locality in which the diseased principle originates and germinates; and 3, the actual process of development.

1. *Nature of the Formative Material:* Although the nature of the blastemal fluid has not been examined prior or at a period coeval with the first origin of the cancer-cell, the author thinks that it may, for various reasons be inferred, that it does not differ essentially from ordinary exudation matter, and is in fact mainly liquor sanguinis, though it is evidently impressed with peculiar vital properties.

2. *Seat of Germination:* Dr. Walshe acknowledges three possible localities of germination, namely, in the interior of vessels—in the substance of vascular walls—in the intervascular spaces. In examining the first proposition, the author states, in accordance with his opinion previously expressed, that the presence of cancer matter in the blood is the result of absorption, and not of primary germination. The third is the most common site of the primary development of the disease.

3. *Nature of the Developmental Process:* This is conceived to be analogous to that of exudation, which is neither one of secretion or nutrition, but may be a substitute for both. [The most interesting part of the question, What gives the impress of cancerous development to a blastema which does not differ from that which in other cases gives rise to simple pus-cells, is left undecided.]

The anatomical elements of cancer are shown to be principally granules, nucleated cells of variable shape, free nuclei, and a fibrillar substance associated with a fluid blastema; capillary vessels are always present. Each of these elements is minutely described by the author; but we shall only allude to those remarks which have the aspect of the greatest originality. In speaking of the cells, the value of the *caudate* cell as diagnostic of malignant structure, is placed in a very different light to that in which it has usually been regarded. The author shows that there is little or no essential difference between them and the ordinary spherical cell, excepting in the accidental circumstance of shape, which depends solely upon the degree of compression to which the individual cells have been subjected. He therefore concludes that the importance of these cells has been greatly overrated. An appearance more truly characteristic of the cancer-cell appears to be the presence of an opaque flattened body in its walls, called by Dr. Walshe the parietal nucleus. The blood-vessels of cancer structure are of two classes, one which originates *de novo*, and the contained blood of which exhibits an independent oscillatory movement, the other formed by the ordinary extension of old vessels. Both sets eventually inosculate.

As the author admits of no difference between the blastema of cancer and ordinary exudation, the evolution of the cancer-cell is supposed to be identical with that of ordinary nutrition. The exact mode of formation is as doubtful in the one case as in the other. Dr. Walshe believes that the formation of the enveloping cell precedes that of the nucleus.

The cell once formed, the author next considers its mode of increase. This, he states, takes place in one of two ways, either by endogenous generation, or the development of one cell within another, or by the secondary cell being formed external to the preceding ones. Both of these modes of growth may coexist in the same tumour.

The two succeeding chapters are occupied with the changes produced in the surrounding tissues by the presence of cancer, and with the general pathology of the formation. The latter in particular is a most important chapter, but we regret that our space will not permit of a more extended notice of it.

The treatment of cancer will not long detain us, as the surgical part of the curative measures may of course be passed over as not belonging to the present report. The internal exhibition of medicines holds out but little encouragement. Among these *conium* has failed in the author's hands to do more than alleviate pain, and the same may be said of other narcotics, as *belladonna*, *aconite*, &c. The only medicine from which he has derived real benefit is the *iodide of arsenic*. With this, in conjunction with compression, he considers that there is the greatest chance of success. It may be given with safety in doses of $\frac{1}{12}$th of a grain, and continued for several months if the precaution be taken to exhibit it about two hours after eating.

The second part of the work which contains the description of the localization of cancer in different organs of the body, affords the most perfect account of these lesions with which we are acquainted. An abstract of the section on cancer of the stomach will be found in a previous page. (7.)

16. *Tubercle.*—The following is Hasse's* description of the tubercle: The chief organic constituents are fibrin, casein, and fat, with a small proportion of albumen; the inorganic compounds are chloride of sodium and phosphate of soda, phosphate and carbonate of lime, oxide of iron, &c. The microscopic character of tubercle varies with the different phases of its development. At first tubercular matter closely resembles recent inflammatory exudation, but it differs from the latter chiefly in being insoluble in acetic acid. More mature tubercle consists of a distinctly granular matter, assuming different shapes, but generally the rounded or oval form. The cells are filled with a finer granular matter, about $\frac{1}{2000}$th of a line in diameter. No change is produced upon them, either by acetic acid or the neutral salts, but they are quickly destroyed by the mineral acids and liq. potassæ. The chalky and transformed tubercle is composed mainly of this granular matter with crystals of cholesterine and remnants of the tissue in which they are deposited. The remainder of this author's observations apply more particularly to tubercle of the lung, and will therefore be more properly given under the head of special pathology.

The much disputed question of the inflammatory origin of tubercle is negatived by the researches of Mr. Rainey,† who has observed that the comparatively healthy appearance of the capillaries surrounding a mass of tubercle, in reference to the tortuous and unequally dilated state of vessels going to parts in which fibrin is deposited as the result of inflammation, are subversive of the doctrine which attributes the deposit of tubercle to that process.

* Op. cit. p. 320. † Med. Chirur. Trans., sec. series, vol. x, p. 594.

## PART II. SPECIAL PATHOLOGY.

### § I.—*Diseases of the Nervous System.*

17. *Epidemic Meningitis.*—Several cases have been recently recorded by Dr. Darby,* which appear to have been instances of inflammation of the membranes of the brain, and bear considerable resemblance to a remarkable epidemic disease, described by M. Rollet† and Dr. Gillkrest,‡ as it occurred at Versailles and Gibraltar respectively. The cases referred to are as follows:

Case 1. A sickly boy, ætat. 14, was discovered in the dormitory on the morning of the 23d of January last, in an almost insensible state, his person and bed affording abundant evidence of his having discharged a quantity of liquid from both his stomach and bowels. When visited soon afterwards, his aspect was that of a person in the collapse stage of cholera; his face pale and sunk; surface cold and clammy; eyes glassy; pupils dilated; his voice when he cried out (for he did not speak) husky and peculiar; pulse a mere thread, about ninety in a minute; muscles of the abdomen and extremities frequently thrown into spasm and convulsion, rendering it necessary to have him held down in bed; frequent vomiting of a colourless glairy fluid; had two or three liquid stools devoid of bile since he came to hospital; could not be roused. He was immediately placed in a hot bath; sinapisms, blisters, and other measures were adopted without success. He lingered for sixty or sixty-five hours, apparently in great pain, and died without having either spoken or swallowed from the time he was seen. The body was removed without being examined.

Case 2. February 3d. A healthy boy, ætat. 10, while at breakfast, first complained of being ill. Dr. Darby saw him within an hour. He appeared like one recovering from a fit of epilepsy; face flushed; skin warm; pulse 100; pupils dilated; required to be roused before he would answer questions; complained of severe pain in, and cried out when pressure was made over, the abdomen; vomited a viscid green fluid; said he had neither passed urine nor fæces from the morning before; belly tumid. Ordered his head to be shaved and leeched extensively; ten grains of calomel and three of Dover's powder immediately, and subsequently blisters and sinapisms, with one grain of calomel and half a grain of Dover's powder every hour. Next day was comatose, and could not swallow; remained in this state until the 7th, when he was observed to be covered with profuse sweat; is reported to have spoken; took some wine, and died an hour afterwards.

*Post-mortem sixteen hours after death.*—Patches of lymph on the surface of the arachnoid membrane, covering the convolutions of the brain; about two ounces of serum containing shreds of lymph in the ventricles; pons and medulla oblongata coated with yellow lymph; brain firm; abdominal and thoracic viscera healthy; the former rather congested.

Case 3. On the same day (February 3d) a delicate boy, ætat. 11, was attacked in a similar manner, but less violently; exhibited symptoms of *fever* on the third day. He was sent to a fever hospital, where he died soon after he had arrived.

February 5th. Three healthy boys, ætat. 8, 9, and 10, respectively, were attacked with headache, sickness, and pain in the stomach; they had each a dose of calomel and a warm bath. Two were discharged cured on the third

* Dublin Journal, April 1, 1846.
Med. Rev. July, 1845.

† Dr. J. R. Bennett's Report, Brit. and For.

‡ Ibid.

day; the third is now recovering from a tedious fever in which the head symptoms were severe.

From the 5th of February to the 15th of March, no case, similar to those described, occurred, but upon that day a healthy boy, ætat. 11, was attacked with headache, pain in the stomach, vomiting, and purging; he became comatose in a short time; the urgent symptoms gave way to active depletion and large doses of calomel, and he is now in fever, with head and gastric symptoms.

On the 17th, a boy, ætat. 5, was similarly attacked, and notwithstanding active treatment, died fearfully convulsed, within forty-eight hours from the onset of the attack.

*Post-mortem Examination.*—The arachnoid membrane exhibited patches of adherent lymph. The veins lying between the convolutions of the brain were literally imbedded in lymph. Substance of brain firm; no fluid in the ventricles, but at the base about two ounces of sero-purulent matter. The medulla, pons and inferior surface of the cerebellum were thickly coated with yellow lymph. The abdominal viscera congested.

On the 18th, a boy, ætat. 12, was attacked in a similar manner, but much more violently. He was incapable of answering or attending to what was said to him in an hour after he first complained; was grinding his teeth; had his head drawn forcibly backwards, and was plunging so as to require two men to hold him in bed. He was bled to twenty-four ounces, when he appeared faint; gave a large dose of calomel.

In less than an hour after the blood was drawn he again became violent: the bandage slipped from his arm, and eight or nine ounces more blood were allowed to flow, which had the effect of subduing his violence. Subsequently leeches and blisters were applied to his head and neck, one-grain doses of calomel given for some hours, and mercurial frictions employed, but he now lies in a state of coma, and there is no hope of saving his life.

On the same day, a boy, ætat. 12, who had been on messages, had eaten his dinner as well as usual, complained when going to bed, and was comatose in less than an hour. I took twenty-four ounces of blood from him; consciousness returned; he complained of pain in his head and belly; got a large dose of calomel, and I had the satisfaction to find him free from all unpleasant symptoms this morning.

Three other boys have complained this day; but when I left the workhouse at half-past five o'clock this afternoon, they did not exhibit any urgent symptoms."

The narrator of these cases was not able to offer any satisfactory explanation of their occurrence; but was inclined to regard them as the expression of an epidemic constitution, which he considered might at a future period give rise to a less dangerous type of disease as its influence became more generally diffused.

18. *Delirium Tremens.*—For some valuable and practical remarks upon the nature and treatment of the above disease the reader is referred to the lectures of Dr. C. B. Williams, a portion of which we have transferred to the 'Abstracts' of the present volume, (5.)

Mr. Prankerd,* of Taunton, being dissatisfied with the results of the opium treatment, has had recourse to repeated doses of croton-oil, from which he states that he has derived the best effects. He gives the details of five cases, two of which being treated by large doses of opium died; in the third and fourth opium was also administered, but without benefit, when croton-oil was resorted to with perfect success. The remaining case was treated from the first with the oil, and also recovered. [Mr. Prankerd is not the first person

* Prov. Med. Jour. April 28, 1846.

who has treated delirium tremens with croton-oil; the practice is not uncommon in India, and Dr. Macgregor, in particular, places great reliance upon it (Vide Art. 5)]

19. *Softening of the Brain, &c., from Obstructed Circulation.*—The effect of obstruction to the cerebral circulation, whether by ligature of the carotid, or spontaneous plugging up of its branches, has of late excited considerable attention. One case in which softening of the brain followed upon a dissecting aneurism of the aorta, causing obstruction to the carotid artery, has already been alluded to (vol. i., p. 195); we have now to mention a paper by Dr. Chevers,* entitled 'Effects of Obliteration of the Carotid Arteries upon the Cerebral Circulation,' and two cases reported by Dr. Hasse,† in which softening of the brain was found to depend upon the obliteration by coagula of the main branches of the intercranial portions of the carotid artery.

Dr. Chevers notices fourteen cases, in which one carotid artery was rendered impervious either by operation or disease; in eleven of these fatal results ensued, from the effect produced upon the brain. The first case is that of a man who was seized with hemiplegia of the right side, about six weeks previous to his death; he sank gradually, and died typhoid. Upon examination ramollissement of the cortical substance of nearly the whole left centrum ovale and corpus striatum was found. The arteries of the brain on the diseased side were dilated and diseased, and the left carotid artery was nearly obliterated at its juncture with the arch of the aorta. The remaining cases are instances in which one or other carotid artery was ligatured. In the first of these, recorded by Dr. Fairfax (Dublin Journal, vol. xxiv, p. 522), hemiplegia followed ligature of the left common carotid; in the second, by Professor Sedillot (Gazette Méd., Sept. 1842), paralysis of the left side of the body and right side of the face followed ligature of the right common carotid; in the third one, by Mr. Abernethy, a wound of the left carotid induced paralysis of the opposite side; a fourth, related by Mr. Girdwood (Ed. Month. Jour., Jan. 1842), appears to have been one of the same kind; a fifth is recorded in Rust's Journal (quoted in Lancet, July 29, 1845); in a sixth the right carotid was tied on the third day after, hemiplegia of the left side ensued; in the seventh a similar train of occurrences took place, but the patient recovered, as was also the case in the remaining four instances. Dr. Chevers further observes that the form of disease discovered in all the fatal cases depended upon anæmia and not upon congestion.

Dr. Hasse's cases may be thus briefly recapitulated:

1. A female, ætat. 39, suddenly fell down insensible, with hemiplegia of the left side; she recovered her senses partially, but quickly relapsed into coma and died. A post-mortem examination, in addition to slight effusion under the arachnoid, revealed a flattened space in the centre of the right hemisphere, in which the convolutions were of a purplish colour, and easily torn. The medullary substance beneath these flaccid convolutions was also soft and of a milk-white colour. Upon further examination, the internal carotid was found to be plugged with a dark-coloured coagulum, extending into its primary cerebral branches. Under the microscope the fibres of this softened portion of brain appeared varicose, and as it were broken up into fragments.

2. The second case was also that of a female, ætat. 40, who after exposure to cold was attacked with apoplexy and hemiplegia of the right side. *Post-mortem*:—the membranes of the brain were congested, and the convolutions flattened. The right hemisphere, the cerebellum and the posterior lobe of

* Med. Gaz. Oct. 31, 1845. † Henle's u. Pfeufer's Zeitchr. iv. 1, 1846; Schmidt's Jahr, iv, 1, 1846.

the left hemisphere were healthy and firm, but the remainder of the same hemisphere, the tractus opticus and the olfactory bulb exhibited an advanced degree of white softening. The left carotid, where it enters the calvarium, as well as the branch supplying the corpus callosum, and that which enters the fissure of Sylvius were completely obliterated by dark adherent coagula.

20. *Apoplexy, Bloodletting in.*—Mr. Copeman,* whose practical remarks upon the small value of bloodletting in the prevention and treatment of apoplexy we have already noticed (Half-yearly Abstract, vol. i, p. 193), has adduced further evidence in support of his opinions, in the publication of a series of illustrative cases. Dr. Griffin† likewise objects to depletion in apoplexy and in cerebral diseases generally, because, in the first place, the symptoms bear no direct ratio to the extent or nature of the disease, and secondly, because it induces a debility which interferes with the process of reparation.

The 'Transactions of the London Medical Society' contain a paper by Dr. Marshall Hall, upon the prevention and treatment of apoplexy and hemiplegia; as it is however an almost verbal repetition of an essay published among his 'Facts and Observations,' formerly noticed by us (vol. i, p. 193), it requires no further mention.

21. *Cancer of the Dura Mater.*—Case reported by Mr. Herapath.‡—A female, ætat. 66, was seized with apoplexy, from which she recovered. At the end of a year she complained of severe neuralgic pains in the face, vertigo, hesitation of speech, and partial paralysis of right hand and leg. She eventually died comatose. After death a tumour of a distinctly cancerous nature was found to spring from the dura mater, under the left parietal protuberance, which had, by its pressure, caused softening and absorption of the corresponding portion of the brain.

22. *Chorea.*—The intimate association of chorea with cardiac disease has been for some time familiar to the profession, but it has scarcely attracted the attention which its frequency deserves. Impressed with this idea, Dr. Branson,§ of Sheffield, has made the connexion of the two apertures the subject of a communication, with the object not merely of calling attention to the association of the lesions in general terms, but especially to demonstrate that an attack of endocarditis, chiefly affecting the mitral valve, is apt to supervene during the existence of chorea. Several cases are related in illustration of this fact, and upon them the following propositions are based:

1st. That a necessity exists for examining the heart constantly in all cases of chorea, since nine out of twenty-one consecutive patients affected with chorea, suffered more or less severely from heart disease.

2d. That disease of the heart is frequently the consequence and not the cause of chorea.

3d. That the heart affection which supervenes in chorea, is often extremely insidious, causing little distress at the time, and is only to be detected by a stethoscopic examination, and yet the seeds of future mischief having a direct tendency to shorten life are then and there sown.

4th. That the valvular souffle heard in chorea is the result of inflammatory action, and does not depend, as in anæmia, upon an altered condition of the blood—the inorganic murmur in anæmia being heard invariably with the first sound, and loudest over the *aortic valves*, and not at the *apex* of the heart.

5th. That the endocardium covering the mitral valve is much more frequently the seat of inflammatory action, in simple chorea unaccompanied by rheumatism, than either the pericardium, or that portion of the endocardium which covers the aortic valves.

* Med. Gaz. March 13, 1846.
† Physiolog. Problems, p. 87.
‡ Lancet, March 7, 1846.
§ Prov. Med. Jour. Nov. 12, 1845.

6th. That unless the heart affection be attacked in its very earliest stage, little hope remains of restoring the valve to a healthy condition, inasmuch as at the time the bruit is first heard there must exist a deposit of lymph upon or beneath the endocardium covering the valve, sufficiently great in amount to prevent its perfect closure; and unless this deposit of lymph is of very recent formation, even the long-continued use of mercury and counter-irritation, our chief, if not only hope, will be of little avail in promoting its absorption.

7th. That mercury is more influential in promoting the absorption of lymph deposited on the pericardium than on the lining membrane of the heart.

8th. That when the pericardium is affected in chorea, the rheumatic diathesis is more strongly marked than when the endocardium is the seat of disease.

23. *Tetanus.*—Several cases of tetanus have recently occurred, which have terminated successfully under very various modes of treatment. In the case of a boy, aged 11 years, reported by Mr. Preshaw,* of Jersey, the hydropathic treatment effected a cure after bleeding, mercury, opiates, and warm baths had failed in arresting the spasms.

Mr. Swayne† reports a case of tetanus which was caused by the accumulation of hardened fæces. This was cured by bleeding and purgatives. In the 'Annales de Thérapeutiques,' 1845, a case occurs which yielded to the repeated use of the vapour-bath persisted in until syncope took place. The tincture of aconite given in doses of four minims until symptoms of poisoning were induced succeeded in another case which was recently observed in the Cumberland Infirmary.‡ A fifth instance, narrated by Dr. Sandwith Hall, yielded to bleeding and mercury. A case described by Dr. Watson,§ of Glasgow, is interesting as an example of the more rare or idiopathic form of tetanus. The patient, aged 30 years, had complained for several days of general lassitude, which was at length followed by gradually-increasing stiffness of the muscles of the jaw and neck, and so on of the trunk and extremities also. The treatment consisted of cupping, turpentine enemata, opiates, the Indian hemps, and nourishment with stimulants. Of these the narrator considers that he was most indebted to the opiates; he did not perceive much advantage from the Indian hemp.

## § II.—*Diseases of the Respiratory System.*

24. *Auscultation.*—M. Lanza‖ invites attention to the fact that the sound on percussion of the thorax varies according to the pitch of the patient's voice. The sound is said by him to be most loud and distinct in persons with a *tenor* voice, least so with the *bass.* He declares, moreover, that he can predicate the character of the voice without having heard it, from the nature of the percussion sound.

25. *Coryza.*—A plan of treatment by which the author affirms that he is able to cut short an attack of coryza within a few hours, is made known by M. Tessier.¶ This plan consists in touching as much of the nasal mucous membrane as can be reached, with a sponge dipped in a solution of the nitrate of silver of the strength of 10 grains to the ounce. The following case is given as illustrative of its effects. A young man caught cold in coming from a ball; on the next day his cold was so intense that he was scarcely able to speak or

* Lancet, Feb. 7, 1846. † Dublin Hospital Gaz. Feb. 6, 1846. ‡ Lancet, April 4.
§ Edin. Month. Jour. Dec. 1845. ‖ Annales de Thérapeutique, Dec. 1845.
¶ Encyclog. des Scien. Méd. Juillet, 1845.

breathe. In this condition he was accidentally met by the author, to whom he lamented the frequency and obstinacy of the catarrhal attacks. Being persuaded to try the plan advised by the author, he arose the next morning perfectly free from his catarrhal symptoms. [Might not the above be a useful suggestion in the treatment of "Hay Asthma? Ed.]

26. *Tonsillitis.*—A similar plan of abortive treatment has been adopted with success by Bretonnean and Velpeau in common inflammatory sore throat. The former of these surgeons frequently relies upon the repeated application of burnt alum to the inflamed tonsil, by the point of the finger, and asserts that he has by this means frequently cured the affection in a couple of days by this treatment alone.*

27. *Croup.*—Dr. Allen,† of Middleburgh, U.S., speaks in very favorable terms of the efficacy of the sanguinaria canadenzis, or blood-root, in the treatment of croup. It is to be given as early as possible in the disease, and in a dose sufficient to produce full vomiting.

28. *Pulmonary Apoplexy.*—Some observations upon a case of pulmonary apoplexy producing death by rupture of the periphery of the lung and effusion of blood into the pleura occur in a recent number of the 'Edinburgh Medical and Surgical Journal.'‡ A female, aged 36 years, after having been beaten by her husband, complained of severe pain in the right side. After this had continued for four days she was suddenly seized with symptoms of collapse. Upon examination no external swelling or discoloration was observed, the chest sounded well on percussion; and the respiration, though rapid, was not accompanied by any abnormal sounds. In the course of a few days, however, bronchial râles made their appearance, together with orthopnœa and harassing cough. Dullness was now perceptible over the lower portion of the affected side, and gradually extended itself. Under these circumstances paracentesis thoracis was performed, and 16 oz. of a bloody fluid drawn off. The woman died eleven days after the sudden seizure, and seventeen after the original injury.

After death six pints of bloody fluid, mixed with coagula, were found in the right pleura. There was no fracture of the ribs. The lung was diminished to less than a third of its size, and was completely invested by layers of flocculent lymph. The lower lobe of the lung contained a tumour the size of a pigeon's egg, which proved to be an apoplectic clot, and exhibited a rent at its lower segment, from which the blood had evidently escaped. In his review of the case, Dr. Paterson, the author, examines the question whether the pulmonary apoplexy and its effects were the consequence of the injuries inflicted by the husband, or whether they were merely a coincidence. For reasons which we have not space to recapitulate he adopts the latter opinion.

29. *Pneumonia.*—The pneumonic sputa have been carefully examined by M. Remak,§ who has announced a new feature in their composition, which he considers characteristic of the disease. The appearance referred to consists of fine fibrinous threads of the form and diameter of the extreme bronchial ramifications. M. Remak at first regarded these as accidental, but he has subsequently discovered them in more than sixty cases of pneumonia. In order to see these threads with distinctness the sputa are to be poured into and well washed with water, when they will be seen of various sizes, but rarely passing a line in diameter. Under the microscope they are seen to be composed of very delicate fibrils laid lengthwise, and inclosing cell-like bodies like those of pus. These fibrillar concretions mostly make their appearance from the

* Annuaire de Méd. et de Chirur. 1846.
† Boston Med. and Surg. Jour. Jan. 1846.
‡ Jan. 1846.
§ Archives Générales, Janvier 1846.

third to the seventh day of the disease, and are, according to the author's observations, never seen in the last stage,—that of purulent infiltration. For this and the additional reason, that they are observed in the greatest abundance only when the râle crepitant is heard, that is to say, at the first stage, the author does not consider the concretions to indicate severity of the disease, but, on the contrary, looks upon their abundant and early appearance as a guarantee for the safety of the patient. The same observations have been confirmed by Schönlein.

The treatment of pneumonia has been attempted by Dr. Mendini* with the tincture of cantharides in conjunction with bleeding. The action of the medicine is said to be contrastimulant, and even so to a greater extent than tartar emetic. [The evidence in favour of this mode of treatment is not, however, sufficiently strong to warrant its substitution for the ordinary method followed in this country.]

30. *Gangrene of the Lung.*—Dr. Durrant, in the 'Provincial Medical and Surgical Journal,' describes a case of circumscribed pneumonia, which terminated in the formation of a gangrenous abscess. The fetor of the breath was removed by the inhalation of creosote, commencing with one drop three times a day, increased to four, above which quantity it was not well borne. Iron and quinine, with the iodide of potassium and dilute nitric acid, were at the same time prescribed. Under this treatment the features of the case assumed a more favorable aspect; the cough and expectoration diminished; the gurgling rhonchus was succeeded by cavernous breathing and pectoriloquy; the pulse at the same time becoming gradually reduced in frequency. The shower-bath was ultimately used daily with decided benefit.

Two fatal cases of this disease without particular interest are met with in Mr. Wells's Report on the Diseases treated in the Naval Hospital, of Malta.†

31. *Paracentesis Thoracis.*—In an Essay upon this subject, Dr. Hughes‡ condemns the practice of regarding the operation as a "dernier ressort," inasmuch as such a proceeding causes it to be postponed until the lung is so irretrievably injured by compression that it is rendered altogether unfit for the resumption of its functions, even although the concomitant circumstances of the case may be favorable. The author considers that the only means of testing the curative capabilities of the operation is to perform it before adhesions are formed and the lung becomes plastered over with albuminous deposit.

Dr. Hughes disagrees with those writers who look upon the admission of air into the thorax as immaterial, but at the same time he does not consider its exclusion a matter of such difficulty, as to influence the propriety of the performance of the operation.

Dr. Olliffe recently presented a Memoir to the French Medical Academy, in which he advocates the operation in acute pleurisy when other treatment has failed. He relates the case of a child, aged 10 years, in which, after the usual treatment for acute pleurisy had failed in preventing effusion, the chest was tapped with the greatest success. The admission of air was prevented by fixing a bladder of gold-beater's skin to the free end of the canula. The operation has since been performed under similar circumstances by M. Beau, and with equal success.§ (9.)

32. *Black Pulmonary Matter.*—Dr. Mackellar‖ has continued the Essay on this disease referred to in our last Report. (Vol. ii, p. 216.) His treatment consists in the use of anodynes and expectorants, with attention to the

* Annali Universali; Gaz. Méd. Janvier 1846. † Edin. Med. and Surg. Journal.
‡ Medical Gazette, Feb. 13, 1846. § Reported in Med. Times, Dec. 27, 1846.
‖ Edin. Month. Journ. Feb. 1846.

digestive organs. He anticipates little benefit from any treatment unless it is applied early in the disease.

33. *Pulmonary Tubercle.*—In his excellent Memoir upon the 'Minute Structure of the Lungs,'* Mr. Rainey does not omit to notice the all-important question of the formation of tubercle in those organs. In order to have the best possible idea of the precise situation of the tubercular matter, the author thinks it necessary to examine it in an injected lung, as by means of the contrast of colour, the exact limits of the morbid substance are clearly defined. When this precaution has been adopted, it will be found, says Mr. Rainey, that the tuberculous matter is discharged from the free surface of the pulmonary membrane into the air-cells,† the partitions of which are destroyed as the deposition augments in quantity, the pulmonary membrane alone remaining in a broken-up state, and mixed with the tuberculous matter.

Deposit of this matter takes place in the interlobular passages in the same manner as in the air-cells. The author believes that softening always commences in the centre of a tubercle, and considers that the fact is a necessary consequence of the gradually disruption of its connexion with the depository vessels by the peripheral extension of the deposit. [The vitality of tubercle in its commencement is thus admitted.] The author's opinions upon the production of tubercle have already been mentioned. [Vide supra, p. 174.]

Hasse denies the inflammatory origin of tubercle, and proves microscopically that the experiments of Cruveilhier, and those which are adduced in support of that theory are totally fallacious, as the substance surrounding the globules of mercury, which was called tubercular matter, consists solely of the composite inflammation-globules, and pus-corpuscles, and by no means of tubercle-cells or granules.‡

This author regards the appearance of central softening as illusory, and believes that it is caused by the inclosure within the tubercular matter, as it is secreted, of the ordinary contents of the air-cell, such as epithelium scales, &c., which form as it were a nucleus. A case is referred to by him (quoted from 'Edinburgh Medical and Surgical Journal,' Jan. 1838) in which, in this manner, several tubercles had a central nucleus of an earthy matter, identical in composition with the stone of the quarry in which the patient was employed.

34. *Grinder's Asthma.*—The pathology of this fatal disease has been minutely investigated by Dr. Favell, in an important Essay which appeared in the last volume of the 'Transactions of the Provincial Medical Association.'§ The following analysis embraces the principal points of the Memoir.

The disease is investigated by the author under three principal heads: 1st, the symptoms; 2d, the causes; 3d, the organic changes.

In its principal symptoms and physical signs grinder's asthma bears a close resemblance to ordinary tubercular phthisis, as in both there is deficient expansion of some portion of the chest, dullness on percussion, tubular breathing, and finally, pectoriloquy and amphoric resonance. The essential cause of the disease is the irritation produced by the inhalation of the fine particles of steel and stone, but especially of the latter, with which the workman is enveloped. The anatomical appearances exhibited in fatal cases are tubercles; small bodies resembling currants disseminated on the surface, and throughout the substance of the lungs;—larger masses in parts of the pulmonary tissues; emphysema;—inflammation of the bronchial, tracheal, and laryngeal mucus

* Med. Chirurg. Trans. New Series, vol. x, p. 590. † The opinion of Hasse is identical with the above. Op. cit. p. 328. ‡ Op. cit. 323. § Vol. ii, New Series.

membrane;—enlargement of the bronchial glands;—enlargement of the heart;—and lastly, granular kidneys. Some of these lesions are essential to the disease, others, and especially the latter, are to be attributed to the habitually intemperate habits of the patients. The dilated tubes, the emphysema and the enlarged bronchial glands are obviously not essential, as they appear in other pulmonary lesions. Those which the author regards in that light are the irritation of the pulmonary mucous membrane, the currant-like bodies, and the tubercles. All these are placed by the author in one class, and regarded by him as induced by one cause, *congestion or inflammation.*

In regard to tubercles, the author defends his belief in their inflammatory origin by the ever appealed-to experiments of Cruveilhier, the fallacy of which, as stated by Gluge and Hasse, we have just alluded to. The currant-like bodies are stated to be the dilated extremities of veins, containing some of the solid constituents of blood. The larger masses are supposed to be the results of pneumonia, and similar to the gray induration of Dr. Addison. The general conclusion to which the author arrives is that the disease is the result of congestion or inflammation of the parenchymatous structure of the lungs, in some cases giving rise to tubercle, in others to pulmonary degeneration without tubercle. [As the tubercular matter is, according to the author's admission, not always present, it cannot be considered as an essential ingredient in the pathology of the disease, which we should regard as a form of pneumonia arising on irritation commencing in the bronchial membranes, and propagated to the deeper structures. That the irritation originates tubercles there is every reason to doubt, as long at least as there is no better foundation for the opinions than the apocryphal experiments of Cruveilhier. The disease is equally explicable on the supposition that the tubercles, when present, existed in the lungs previously to the development of the disease; and that their further increase was the result of that augmented deposition which is known to occur under circumstances which induce depression of the vital powers, whether accompanied by irritation or not.]

35. *Spasmodic Asthma.*—Rayer* professes to cure the asthmatic paroxysm by touching the pharynx and velum palati with a sponge dipped in a strong solution of ammonia, applied with a suitable handle. He warns us, however, that in some cases the application is attended with severe suffocative symptoms, so that the remedy must be at best but of questionable utility. As a test of strength, he advises that it should not be stronger than the nostrils will conveniently tolerate.

## § III.—*Diseases of the Circulatory System.*

The last semestral period has been unusually deficient in communications of interest in connexion with the pathology of the circulation. The only subjects of importance, exclusive of those contained in the 'Abstracts,' are given below.

36. *Slow Pulse.*—Any remarkable slowness of the pulse is apt to lead the practitioner's attention to the cerebral system to the exclusion of other causes equally capable of giving rise to the phenomenon. Dr. Stokes† relates a case of cardiac disease, in which he believes that the slowness of the pulse (30-40) was entirely due to fatty degeneration of the muscular substance of the organ.

37. *Cyanosis.*—A case of cyanosis is recorded by Mr. Spitta§ which is peculiar for the length of time the patient survived, being forty years. The

* Annales de Thérapeutique, Nov. 1845. † Dublin Hosp. Gaz. Jan. 1, 1846.

foramen ovale was open, the pulmonary artery was narrow, and the left ventricle hypertrophied.

38. *Tuberculous Disease of the Heart.*—Mr. Fenwick* narrates the case of a man who, after recovery from typhus fever, presented some of the symptoms of phthisis. The chest was, from accidental circumstances, but hastily examined. The sound, on percussion, was much more dull on the left anterior chest than on the right at its upper part. On the right anterior chest, a dull sound commenced at the fourth rib, and extended downwards to the lower edge of the liver, which was felt projecting below the costal cartilages. Posteriorly, the resonance on both sides was pretty equal and natural, excepting that dullness commenced inferiorly on the right side at the same point as on the front. Mucous râles existed on both sides, excepting over the dull part of the right chest, where respiration was absent. The heart's sounds were not noticed, nor its extent ascertained by percussion. He sank a few days after the examination. At the autopsy the left lung was found to be firmly bound down to the chest by adhesions, requiring considerable force to separate them. Anteriorly, at the part where the dullness on percussion had been observed, there was a mass of false membrane, about three lines in thickness, and at various parts throughout the substance of this membrane, were oval patches of tuberculous matter. The right lung was also adherent as low as the fourth rib, below which, the cavity of the pleura was filled with serum containing flocculi of lymph. This lung had no covering of false membrane. The substance of both lungs was healthy, excepting a few scattered tubercles, mostly hard, and of old formation. The heart was covered anteriorly by a layer of false membrane, of the same description as that which existed upon the left lung. The cavity of the pericardium was completely obliterated. Tuberculous matter was deposited in large masses beneath the lining membrane of the ventricles, and throughout the thickened pericardium, but none was apparent amongst the muscular structure, although it in many parts encroached on the walls of the ventricles. Valves all healthy. Liver rather enlarged, and of a nutmeg appearance. Spleen adherent to the surrounding parts, but otherwise healthy. Other viscera healthy.

39. *Polypiform Concretions.*—M. Parchappe† discusses the question whether it is possible to distinguish polypi formed during life from those which originate after death, and whether they are inflammatory products or simple coagula. The former questions he answers in the affirmative. Those concretions which are composed of a sanguineous clot, with the fibrin separated and disposed in a thin lamina, and not adherent to the parietes of the heart, are, he thinks, evidently of cadaveric origin. Those, on the contrary, in which the fibrin is deposited as a nucleus in the interior of the clot, and which are interlaced among the columnæ carneæ, as well as those which appear to be organized, and contain cavities filled with grumous blood, are formed previous to death. With regard to the second question, M. Parchappe does not think that there are any certain signs by which the concretions produced by inflammation can be distinguished from the above; but he regards the inflammatory concretions as extremely rare in comparison with the latter. The essential condition in their formation he considers to be a retardation of the circulation.

A dissection is related by Mr. Hodson,‡ in which the left ventricle contained from fifty to sixty adherent polypiform cysts of all sizes, up to that of a nut, and containing pus [softened fibrin? Ed.]. The symptoms during life were unknown.

40. *Pericarditis, Causes of.*—Dr. Taylor, of University College, has investi-

* Lancet, Feb. 7, 1846.

† Mémoires de l' Acad. Séance, 2 Mars.

‡ Lancet, April 11, 1846.

gated the causes of pericarditis in an elaborate essay, published in the last volume of the 'Transactions of the Medico-Chirurgical Society. From the diffuse style in which the essay is written, it is a matter of considerable difficulty to give a satisfactory abstract of its contents; we shall, therefore, only touch upon some of the most salient points. The author recognizes two conditions under which pericarditis is liable to occur. 1. In persons previously in good health, or in the course of asthenic disease, as acute rheumatism. 2. In persons previously in bad health, or in the progress of some chronic disorder. Of 25 cases adduced in illustration, 15 belong to the first category and 10 to the second.

Of the 15 cases, 13 occurred during the existence of acute rheumatism; of the two remaining, slight swelling of one of the joints occurred after the pericardial inflammation had set in, and in the other there was no obvious rheumatism, but from antecedent circumstances, the author regards it as a case of *rheumatic fever without arthritis.*

Of the 10 cases in the second class, six had Bright's disease of the kidneys; in the seventh this complication was uncertain. In the remaining three the condition of the kidneys was not ascertained. In analysing these classes of cases the author considers that one particular state of the blood may possibly exist in both, namely, a surcharge with urea, and that to this the pericardial inflammation is due in each case. The fact of a *blood disease* being the antecedent, not only of pericardial but of other intercurrent inflammations, is strongly insisted upon, and is, indeed, the prominent idea in the essay. For the relative frequency with which the two diseases, in which this morbid blood-condition is the chief element, operate as a cause of pericarditis, and for various other minutely considered points connected with the subject, we must refer to the original essay.

41. *Aneurism.*—The following is an abstract of the most recent essays and cases of aneurism of the heart and great vessels.

Dr. Barker,* of St. Thomas's Hospital, has published an account of two cases of aneurism, one of the arteria innominata, the other of the renal artery, in which two of the symptoms upon which we commonly rely, namely, pulsation and "bruit," were absent throughout the entire duration of the disease. In other respects the cases are without unusual interest.

An additional case of dissecting aneurism of the aorta has been reported by Dr. Thompson.† The patient, a man æt. 45, died with symptoms of internal hemorrhage after vomiting. On examination the rent in the artery, by which the blood had formed its unnatural channel, was found to be immediately above the sigmoid valves; and the coats of the artery were separated at different portions of its circumference as far as the renal arteries. Death was produced by rupture of the cellular tissue at the base of the heart, and consequent effusion of blood into the pericardium.

A case of partial aneurism of the heart has recently occurred to Dr. Peacock,‡ and was introduced by him to the attention of the Medico-Chirurgical Society. The patient, while labouring under pleurisy, was seized with sudden fainting, and died on the fifth day after. The post-mortem examination revealed, in addition to the pleuritic effusion, the existence of an aneurismal pouch at the apex of the heart, which had given way. The case is especially remarkable for the length of time which intervened between the rupture and death.

* Med. Chirurg. Trans. vol. x, New Series. † Med. Gazette, April 1846.

‡ Meeting of Med. Chirurg. Society, March 24, 1846.

## § IV.—*Diseases of the Chylopoietic System.*

42. *Sialorrhœa.*—Under this title Dr. Glover* describes a case of profuse salivation unconnected with mercurial action. The quantity of saliva discharged exceeded a pint daily. No treatment appeared to exercise any control over the disease.

43. *Rupture of the Stomach.*—Two cases of this accident have lately been recorded which are remarkable in not having been preceded by ulceration or violence, but were, strictly speaking, spontaneous. The first, which is by Dr. Morici,† is as follows:—A man, æt. 30, was seized with intermittent fever, which was cured by quinine in about ten days. He was subsequently seized with symptoms of renal calculus, which had nearly subsided, when he suddenly fell down and expired. After death the thoracic viscera were found healthy, as were also the abdominal organs, with the exception of the stomach, which exhibited a rupture upon its anterior surface of three fingers' length, through which its contents had been extravasated. The parietes of the organ had not undergone any pathological change.

A similar case occurred in the Marylebone infirmary. In this instance the pylorus was blocked up by a piece of potato.‡

A singular instance, in which spontaneous rupture of the stomach was followed by general emphysema, appears in the 'Annales de la Société de Médicine de Gand.' Its details are given below.

"A surgeon of Gand was seized with a sudden indisposition after a meal; his skin was cold and corrugated, and covered with perspiration; pulse hard and scarcely perceptible; voice lost; respiration anxious; abdomen tense and tympanitic. An emollient enema was administered to him; suddenly, while making an effort to go to the water-closet, an emphysematous swelling appeared extending up the neck, putting the patient into the most imminent danger of suffocation; the action of the lungs was suspended, the swelling increasing at each inspiration; the patient in the meantime performing the action of deglutition as it were in spite of himself. Presently his appearance was so altered that hardly anything of the human form was discernible; he retained his consciousness, however, and took part in the consultation held by three of his professional brethren about him. He experienced a burning thirst, and was calling every instant for cold water, but it was remarked that the difficulty of swallowing became momentarily greater, while the motions of the act were rapidly performed whether he tried to drink or not. In some minutes he expired in making an effort to get down a small quantity of water. The body was soon inflated like a bladder distended with air. *Dissection.* The enormous swelling of the front of the abdomen did not subside even on cutting into the cavity of the peritoneum, in which there was no blood. A second transverse incision exposed the stomach, which immediately protruded in consequence of its great distension with air, and was so large as to reach from the epigastrium to the iliac fossa; its muscular coat seemed hypertrophied. On drawing forward this viscus and tearing through the layers of omentum which connected it with the parts above, the air it contained rushed out by a large opening which extended from the cardiac to the pyloric orifice, along the lesser curvature. In this region the organ was found softened into a pultaceous mass that involved both the muscular and mucous coats; the latter tunic was injected strongly with dark-coloured blood, which appearance was insensibly lost near the rent. There was no trace of ulceration—no swelling in the edges of the ruptured part—no adhesions surrounding it; the perito-

* Med. Gazette, Feb. 27, 1846. † Annali Universali. ‡ Lancet, Jan. 3, 1846.

neum was natural. The lungs had subsided round the spine; the cavities of the heart were filled with black blood; there was a collection of serum in the right pleura and in the pericardium."

44. *Diseases of the Liver. Hydatids.*—An interesting case of hydatid abscess of the liver is detailed by Mr. Alexander,* of Halifax, Nova Scotia, in which a cure was effected after evacuation by the trochar. A young lady, æt. 20, after having suffered from the endemic fever of the West Indies, became the subject of hectic fever, with great debility; with a prominent, smooth, and indistinctly fluctuating tumour on the epigastrium. As the latter symptom became more decided, a trochar was introduced, under the impression that it was a case of ordinary hepatic abscess. The contents proved to be those of a suppurating hydatid cyst, consisting of offensive pus, with perfect, as well as the debris of, dead hydatids. After a course of tonic treatment, and the profuse evacuation of similar matter for a considerable time, the cavity diminished, and the patient eventually made a complete recovery.

45. *Extra Peritoneal Dropsy.*—Dr. Scott,† of Harrisonville, U. S., met with a case which may be thus briefly narrated:—In a female, æt. 20, the abdomen began gradually to enlarge from the age of 15 to the period of her marriage. Soon after this time the distension became so great that paracentesis was performed, and seventeen gallons of fluid, supposed to be ascetic, were drawn off. The operation was subsequently repeated several times, and each time as large a quantity was evacuated. The patient eventually sunk from exhaustion, and was examined after death, when it was discovered that these immense collections of fluid were not contained in the peritoneal cavity, as had been supposed, but in an immense cyst, situated in the cellular tissue of the abdominal parietes.

46. *Enteritis.*—After adverting to the discrepancy which exists among high authorities respecting the value of bloodletting in enteritis, Dr. Griffin‡ lays great stress upon the necessity of exercising caution as to the quantity abstracted, as unless this be observed, the real debility induced by the loss of blood may be readily confounded with the indirect debility which is the natural consequence of inflammatory action in the serous and muscular coats of the bowels. If bloodletting is intended to be a prominent element in the treatment of a case of enteritis, he thinks that it should be early performed. Purgatives are justly condemned in enteritis; patients, he observes, do not recover because they are purged, but they are purged because they recover. Of opium Dr. Griffin entertains a high opinion, and he relates several cases in support of his preference.

47. *Intestinal Obstruction.*—Three cases have recently been placed on record which possess features of considerable interest. In one which was witnessed by the late Dr. Hocken,§ constipation had resisted treatment for three months, no evacuation having taken place during one entire month. The relief was obtained by the mechanical removal of a large mass of indurated fæces from the rectum.

In a second case, reported by Dr. J. Campbell,‖ ileus of the most violent degree was induced by the impaction in the rectum of a large concretion, which proved to be composed of hardened biliary matter. On its expulsion the patient speedily recovered.

Dr. Todd relates a case of obstruction in which, after the unsuccessful employment of the usual remedies for a period of twenty days, a copious evacuation was obtained by inflating the bowels with air.

* Med. Gazette, Dec. 19, 1845. † Amer. Journ. Med. Sciences, Oct. 1845.
‡ Med. Prob. reviewed in Med. Chirurg. Rev. Jan. 1846. § Edin. Med. and Surg. Journ.
‖ Medical Gazette, Feb. 21, 1846.

Dr. Chevers* advocates the use of sulphate of zinc in large doses in habitual constipation depending upon loss of tone in the muscular tissues of the large bowels. In similar cases M. Tessier recommends injections of cold water, and the internal exhibition of the powdered nux vomica. (20.)

## § V.—*Diseases of the Genito-Urinary System.*

48. *Morbus Brightii.*—This important affection has recently excited greater attention than it has received at any period subsequent to its investigation by the talented physician whose name it bears. The chief part of the interest with which it has of late been regarded is due to the promulgation of the views of Dr. Johnson,† of King's College, respecting its pathology. The true nature of the disease is believed by this writer to consist in a peculiar morbid condition of the epithelium-cells lining the uriniferous tubes, which leads to their abnormal engorgement with fat or oil-globules. This discovery is assumed by Dr. Johnson to be novel; but though he is indubitably entitled to the credit of bringing the subject prominently before the view of the British pathologist, there can be no doubt, as will presently be seen, that the existence of these globules in the disease in question was familiar to Eichholtz, Lebert, Canstatt, &c.

The accumulation of fat in the secretory cells of the kidneys leads to the dilatation of the tubules, and it is the transverse section of these which, according to Dr. Johnson, constitutes the appearance known as "granulations." The atrophy of the kidney and the presence of albumen in the urine, are both attributed to the mechanical effects of the accumulation. The author does not admit any congestive stage prior to that of deposition, and believes that the varieties of the disease depend essentially upon the greater or less rapidity of the deposition of fat.

This fatty degeneracy of the kidney is considered to be of constitutional origin, and like the same condition of the liver, to require a constitutional rather than local treatment. The author repudiates the idea that there is any connexion between this disease and scarlatina. The treatment laid down by Dr. Johnson consists in a tonic regimen in respect to diet, atmosphere, exercise, and medicine; in the avoidance of all exhausting remedies, and abstinence from fat and other carbonized matters as articles of food.

The announcement of these views produced a discussion at a meeting of the Medico-Chirurgical Society, in which a variety of opinions have been elicited. To the opinion that the albumen in the urine is due to the mechanical effect of the fatty accumulation Dr. Snow objected, that, in the latter stages of the disease, in which, if Dr. Johnson's theory be exclusively adopted, the albuminous excretion should be most copious, it is no uncommon thing for the albumen to be greatly diminished in abundance, or even to disappear altogether. [Martin Solon regards a copious deposit of albumen to be a favorable sign, as indicative of an incipient stage of the disease. Ed.] He also observed, in reference to the diet, that it is questionable whether, in strictly confining the patient to nitrogenized food, we are not incurring the risk of coma and other cerebral symptoms, by loading the blood with urea, which the damaged secretory apparatus of the kidney would fail to eliminate.

In reference to the propriety of bloodletting in the early stage of the disease, which is disapproved of by Dr. Johnson, Dr. Copland and Dr. C. J. B. Williams offered a contrary opinion. The latter, in particular, observed that he knew of no other treatment so beneficial in the early stage, especially of the acute form. Dr. Budd considers the hypothesis of Dr. Johnson as inade-

* Medical Gazette, Feb. 27, 1846. † Reported in Med. Gaz. Nov. 1845, &c.

quate to explain the phenomena of the disease. He also alluded to the parallelism of fatty liver, to show that there was this difference between fatty liver and its affirmed congener, Bright's kidney, that in the former, secretion is not materially interfered with, while it is greatly interrupted in Bright's disease.

The above pathological deductions of Dr. Johnson are also criticised by M. Robinson,* who is well known for the attention which he has bestowed upon the investigation of "morbus Brightii." Mr. Robinson does not, however, question the accuracy of the microscopical observations of Dr. J., but solely the reasoning which has been based upon them. He proceeds to show, that even granting the presence of fatty cells, as asserted by Dr. Johnson, there is nothing in their presence to militate against the opinion advanced by himself (Inquiry into the Pathology of Granular Kidney, 1842,) that the existence of albumen in the urine is due to a disturbance in the circulation. He observes that he has proved by actual experiment (tying the renal vein,) that the only condition necessary for the production of albuminous urine is undue compression of the smaller vessels of the kidney. It follows, therefore, if the fidelity of these experiments be granted, that there is no constant connexion between the above condition of the urine and the presence of fat in the epithelium-cells. And since the exciting and predisposing causes of the disease are those which have a known tendency to induce renal congestion, and since that congestion has been found to be capable of producing albuminous urine, the writer concludes that the pathological appearance discovered by Dr. Johnson is not a necessary element in the disease, although it may be an occasional one.

Eichholtz† regards the essential pathological element of Bright's disease to consist in the generation of an abnormal fibrous tissue in the kidney, analogous to that which is found in cirrhosis of the liver, which tissue operates in producing compression of the renal capillaries. The generation of this tissue is not, according to this author, a local affection, but is part of a general diathesis, and may occur not only in the kidney and liver, but also in the lungs and spleen. The development of this tissue in the lungs is said, in cases of phthisis, to be capable of exercising a salutary effect upon the progress of the disease, by leading to the cicatrization of tuberculous cavities. The essay in which these doctrines are enunciated is too long for entire analysis in the present report; we therefore refer our readers, for further details, to the pages of the 'Medical Gazette' (Nov. 21 and Dec. 5, 1845,) where the essay will be found faithfully translated. We have space only for the following conclusions:

1. That there is a disease which commonly attacks the liver, spleen, and kidneys, which depends upon an abnormal condition of the blood, and is manifested in the development of an accidental tissue of fibro-cellular formation, which compresses the glandular structure of the affected organ, and interferes with its functions.

2. This peculiar formation, when it occurs in the kidneys, is known under the designation of "granular degeneration." In this organ the formation goes through two stages, *the one characterized by the deposition of fat*, the other by the development of fibrous tissue. [The process of transformation from the fat-globule into the fibre is stated by the author to be by the conversion of the fat, together with the albuminous fluid, which is said to be simultaneously effused, into inflammatory globules; these, again, are changed into cells, which in their turn are transformed into fibres.]

3. A similar fatty and fibrous degeneration occurs in the liver, having the same mutual relations.

4. In the lungs we have an example of one diathesis extinguished by an-

* Med. Gaz. Dec. 19, 1845. † Müller's Archives, 1845

other—the tuberculous, by another which has no name, but the symptoms of which are granular degeneration of the liver, spleen, kidneys, &c.

Lebert,* in speaking of the microscopic characters of the granulations in "Bright's disease," remarks that "the granulations of Bright exhibit, as their microscopic elements, molecular granules, and aggregated globules; sometimes we find also *fat-globules*." They are situated sometimes in the Malpighian corpuscle; sometimes in the uriniferous canals; sometimes in the interstitial substance, between the vessels and secretory apparatus."

That the presence of fat-globules in kidneys in "Bright's disease" was known to Caustatt, as well as to Lebert and Eichholtz, appears certain, from the following extract from his work, 'De Morbo Brightii,' published in 1844, and which is extracted by Dr. Willshire.†

"The author found in the liquid obtained by expression of the cortical substance, a large quantity of fatty globules, soluble in sulphuric ether, and irregular oval cellules, soluble in acetic acid. The medullary substance contained a like abundance of fat.

"These two varieties have this in common—the volume of the cortical substance is augmented by a matter of new formation, deposited either in the uriniferous tubes, or in the intermediate tissue between the tubes and the vessels, from which results compression of the latter, and decoloration of the cortical substance. Microscopic observation teaches us that this new formation is composed sometimes of simple and conglomerated granules, transformable into fibres, at other times of *fatty globules and vesicles*."

An anonymous writer ('Lancet,' Feb. 21, 1846,) likewise proves that the existence of the fat-globules in "Bright's disease" was known to Gluge.

The great susceptibility to mercurial action of persons labouring under albuminuria is mentioned by Mr. Harrison,‡ in conjunction with the narration of a case in which uncontrollable salivation followed upon a moderate inunction. The editor of the 'Medical Gazette,' in commenting upon this fact, makes the judicious suggestion of testing the urine in all cases of visceral disease in which the subjecting the patient to a mercurial course is contemplated.

49. *Chylous Urine.*—An instance of this remarkable condition of the renal secretion is recorded by Dr. Bunyon,§ of George Town, British Guiana, which, after having been unsuccessfuly treated by other medicines, eventually yielded to the employment of the Rhizopora racemosa.

## § VI.—*Diseases of Uncertain or Variable Seat.*

50. *Diabetes.*—Although it cannot be said that the pathology of this interesting disease is yet clearly ascertained, it may be affirmed that the more recent investigations point to the stomach as the organ which takes the initiative in the hitherto inexplicable train of symptoms. In two fatal cases which have been minutely investigated by Dr. Percy,‖ of Birmingham, the stomach has been submitted to the scrutiny of three of the most accomplished microscopists of the present day, Messrs. Goodsir, Busk, and Bowman. In the first case Messrs. Bowman and Goodsir were not able to discover any brim of the stomach, but Mr. Busk, by examining it side by side with a non-diabetic stomach, found the following points of difference. In the mucous membrane, and its epithelium-cells, no distinction could be observed between the diabetic stomach and the healthy one, but in the viscid mucus adherent to the surface, this difference was perceptible. In the diabetic stomach numerous minute sporules of a confervoid character were observed, together

* Physiologie Pathologique, tom. i, p. 515. † Med. Times, Dec. 13, 1845.
‡ Med. Gazette, Nov. 14, 1845. § Lancet, Jan. 24, 1846. ‖ Med. Gaz. Feb. 13.

with several portions of a confervoid mycelium, apparently produced from similar sporules. In the mucus of the healthy specimen Mr. Busk could not see a single confervoid sporule or filament, but it contained an immense number of actively moving vibriones. The latter did not exist in the diabetic stomach.

The second example was that of a child, ætat. 7; the stomach examined by Mr. Busk, presented, as in the other case, nothing abnormal as regards its texture, but in the mucus the same confervoid sporules and masses were observed. As far therefore as we may draw any conclusions from two detailed dissections, it would appear that diabetes is in some way connected with the presence of confervoid growths in the stomach.

In the post-mortem examination of a case of diabetes treated by Dr. Benyon, and reported in the 'Dublin Medical Press,' * the stomach was likewise the only part in which any lesion existed which could reasonably be considered as the proximate cause of the complaint. In this instance the organ exhibited very decided traces of inflammatory action. It is to be regretted that no microscopic investigation was instituted.

M. Bouchardat† examines the subject of diabetes mellitus under the following points of view:

1. The relation between the injection of amylaceous substances and the saccharine condition of the urine.
2. The substitution of fatty and alcoholic articles of diet for those containing fecula and saccharine matter.
3. In respect of the presence of diastase in the stomachs of diabetic patients.
4. The state of the blood in diabetes.
5. The condition of the contents of the digestive canal, blood, and urine in fatal cases.
6. The pathology of the disease.
7. The treatment.

1. *Relation between the Ingestion of Amylaceous Matter and the Presence of Saccharine Matter in the Urine.*—The author's observations in order to determine this point, were conducted by measuring the quantity of each article of food taken during the twenty-four hours; the quantity of urine passed in the same space of time; and the exact proportion of saccharine matter contained in it. By this proceeding he has constantly ascertained that the quantity of sugar in the urine was in exact correspondence with the amount of matter convertible into sugar, consumed during the twenty-four hours. By diminishing the one the other underwent a corresponding decrease, and by suppressing them altogether the urine gradually returned to its normal quantity and condition. He also observed that the thirst of the patient was in direct ratio with the quantity of saccharine or amylaceous food taken. The thirst is readily explained in the author's opinion, by the known effects of *diastase* upon starch. In order that starch may be converted into sugar, it is necessary that it should be dissolved in seven times its weight of water, and he therefore conceives that to produce this inevitable consequence of their condition, diabetic patients instinctively consume that proportion of fluid. (!)

In reply to the question, How is it, if the quantity of sugar in the urine is exactly in ratio with the quantity of fecula consumed, that sugar still appears in the urine, even after many days' abstinence from those articles of diet? the author states that in such case, he believes the patient has taken them by stealth, in spite of precautions to the contrary.

2. *On the Substitution of Fatty and Alcoholic Substances for those con-*

* April 29, 1846. † Annuaire de Thérapeutiques, 1846.

*taining Fecula and Sugar.*—The author condemns the practice of entirely suppressing amylaceous food, without supplying a substitute. He observes that these substances belong to the class of products which supply respiration, and it is therefore indispensable to replace them by other articles of the same nature as regards respiration, but not convertible into sugar. Such articles are prescribed in the oils and alcoholic fluids, which should be united in just proportions, either of them separately being, the author believes, inadequate for the purpose intended. These are to be given in addition to the meat and other proteim compounds. Among the alcoholic beverages, the author gives the preference to old claret or burgundy, a bottle of which may be taken daily by an adult. Of fatty matters he considers 150 to 200 grammes per diem amply sufficient.

3. *On the presence of diastase in the stomach of diabetic patients.*—This substance is considered by Bouchardat as peculiar to the diabetic stomach, and as the agent by which the fecula is converted into diabetic sugar. The manner of obtaining it and its chemical properties are given in this section, but are too purely chemical for the present report.

4. *On the blood of diabetic patients.*—The most interesting point in connexion with the blood in diabetes is that of the presence of sugar. Upon this point there is even to the present time a difference of opinion; but Bouchardat explains the disagreement, upon the supposition that the periods at which the blood experimented upon was drawn, was different in the different cases. He has ascertained that in order to detect sugar with the greatest certainty, the blood must be taken two or three hours after a repast. With this precaution the presence of sugar has in all cases been clearly ascertained by him.

The author disagrees with Mialhe that there is any deficiency of alkalinity in diabetic blood, his latest experiments having proved to his satisfaction that the only constant difference between diabetic and healthy blood is the presence of sugar in the former, as above stated.

5. *Examination of the contents of the stomach, &c. in fatal cases.*—Diabetic patients die in one of two manners: slowly by gradual exhaustion, or suddenly. In the former case Bouchardat states that pulmonary tubercles are always present; in the latter, death is the consequence either of cerebral effusion or pneumonia. In neither case is sugar to be found either in the digestive canal, or in the urine, or in the blood. He relates a case in which, although the evening before death, the urine contained 135 grains to the pound of diabetic sugar, in that found in the bladder after death, which took place within eight hours from the seizure, not a trace was to be discovered.

*Nature of the disease.*—In investigating this question the author first inquires whether the digestion of amylaceous products takes place in the same manner in diabetic and healthy stomachs. He concludes that it does not, for the reason that healthy gastric juice has no effect upon these matters, and that if a healthy man be made to vomit two or three hours after a meal consisting of these matters, no sugar can be detected, while if a diabetic patient be subjected to the same experiment, it can be obtained abundantly.

A second question is, why does the urine of diabetic patients contain sugar after a meal containing amylaceous substances, and why is sugar not present in the urine of a healthy person under the same circumstances? The reply is that a diabetic stomach converts the fecula into sugar in virtue of the diastase, and that from the rapidity of its digestion the sugar is transmitted in great quantity into the blood; in healthy stomachs, on the contrary, feculent matters are but slightly digested, that process being in them chiefly completed in the small intestines, and the results of this digestion can only reach the

torrent of the circulation through the vena porta. [The author states that the absorption of dextrine and sugar does not take place in the intestines by the orifices of the lacteals, but by the capillary veins. In saying that the matters absorbed by the venous capillaries of the stomach have a more direct route to the general circulation, he forgets that the gastric veins as well as the intestinal enter the portal system.]

*Treatment.*—In the treatment of diabetes Bouchardat considers hygienic and dietetic means of the first importance. The first thing to be done is to suppress or diminish aliments containing starch. An exclusively animal diet is not to be advised. Gluten bread may be added, and is greatly praised by the author; it is not, however, so exclusively beneficial as is thought by many. Wine and fatty matters are, as has already been observed, strongly recommended by him. Medicines are believed to exercise but a secondary influence, but of those most trustworthy, the carbonate of ammonia and opiates are mentioned. In some cases presenting a more than usually anæmic character, the preparations of iron are useful. Among the agents supposed to be capable of preventing the saccharine conversion of starch, the author mentions the caustic alkalies, the alkaline earths, the mineral acids, alum, and tannin. In none of these, however, does he place much confidence.

In the treatment of diabetes Dr. Benson places the greatest reliance in acetate of lead and opium combined with an animalised diet. Mialhe,* who believes the proximate cause of diabetes to be deficient alkalinity of the blood, urges the advantage of alkalies. Dr. John Aldridge† advises the balsams, ammonia, strychnia, and other excitants when, as is commonly the case, the functions of the skin are suppressed, and chalybeates, alum, and the metallic astringents if the skin be active. He also disapproves of an exclusively animal diet.

51. *Arthritis in Paralytic Patients.*—Dr. Scott Alison‡ calls the attention of the profession to the occasional occurrence of a form of arthritis which he considers peculiar to the joints of paralytic limbs, and which he believes to be caused by a state of reduced vitality in the paralysed parts, and the presence of noxious agents in the blood. The reduced vitality of paralysed parts was stated to render them less able to resist the injurious agency of excitants. In proof of this, various facts were adduced by the author, and among them a case was mentioned in which salivation was confined to the paralysed side of the mouth in a case of facial paralysis.

52. *Scrofula.*—We have through the politeness of the author an opportunity of noticing a recent work by Mr. Phillips,|| in which this important disease appears to have been most indefatigably revised. As will be seen in the sequel, the opinions advanced are partly at variance, not only with those of M. Lugol,§ the last writer upon the subject whom we had occasion to mention, but also with those generally received by the profession.

Scrofula is defined by Mr. Phillips to be a disease of the constitution, which shows itself mainly by the swelling of the subcutaneous lymphatic ganglia, combined with the deposition of *scrofulous* matter; without the latter he regards the proof of a scrofulous constitution as wanting. Respecting the external characteristics of the scrofulous habit, the author believes that it may exist under the utmost variety of appearance. He agrees with Lugol

* 1. Memoir read before the Acad. of Sciences, Paris. Reported in Med. Times, April 11, 1846. † Dub. Hospital Gazette, Jan. 1, 1846.

‡ Reported in Med. Gazette, March 6, 1846. || Scrofula, its nature, cause, &c., London, 1846. § Researches and Observations on the Causes of Scrofulous Diseases. Translated by W. H. Ranking, M.D. 1844.

in denying its greater prevalence in persons of light hair and eyes, as in 9000 scrofulous children examined, only thirty-two per cent. had hair of that complexion. He denies also the alleged frequency of the tumid lips and alæ nasi in scrofulous children, as well as their intellectual precocity. He denies, in fact, that there is any certain sign of the scrofulous diathesis up to the moment of deposition in the glands.

For his description of the microscopic characters of scrofulous matter the author depends upon the investigations of Mr. Dalrymple, who decides that the whole (scrofulous) material is composed of disintegrated tissue, granular molecules, irregular exudation-corpuscles without nucleoli, and a considerable quantity of oil-globules. In Chapter IV the condition of the lymphatic glands, previous to the deposit of scrofulous matter, is considered. That these structures do undergo some change prior to that event seems certain; but whether the change is one depending upon the general condition of the blood, or upon local agency limited to the affected glands, is not so easily determined. The author leans to the latter opinion, and believes that the change is in most cases the effect of alternation of temperature, as the glands most commonly affected, namely, the cervical, are particularly exposed to such agency. The nature of the change thus induced is, according to Mr. Phillips, one of chronic inflammation, as the true inflammatory exudation-corpuscle may be seen upon examination with the microscope.

In inquiring into the source whence the scrofulous matter is derived, Mr. Phillips, after discussing the feasibility of the old opinion, that it is deposited through the inspissation and obstruction of the contents of the lymphatic vessels, comes to the conclusion generally entertained, that it is derived from the blood. The changes which this fluid undergoes, and its constitution in the scrofulous diathesis, are minutely described from the analysis of 67 cases, made by the author; but as these results are mentioned elsewhere, (see Report on Progress of Chemistry in the present volume,) we shall not here further allude to them; suffice it to say, that it is upon the accumulation in the blood of certain morbid materials that the diathesis is said to depend.

The next chapter treats of a very important point in the history of scrofula, namely, its identity with tubercle. That the two products are essentially the same is admitted by the great majority of pathologists, and is, we believe, the correct opinion; Lugol even goes so far as to assert that pulmonary tubercle is the *natural death* of the scrofulous; and Mr. Gulliver determines by the microscope that scrofulous and tubercular matter are so precisely similar, that it is impossible to distinguish them. On the other hand, Albers conceives that the differences are readily demonstrable; and Lebert is of the opinion that they are analogous, but not strictly identical products. The latter opinion is the nearest approach to that held by the author. The grounds upon which his disbelief in the identity of the scrofulous deposit and tubercle is established are—the different periods at which the two diseases, scrofula and pulmonary tubercle, destroy life; the difference in the proportionate invasion of the two sexes; and the difference in the relative frequency of the two diseases.

We shall pass over the two succeeding chapters, in which the prevalence of scrofula in Great Britain and the question of its increase or decrease are discussed, and turn to Chapter IX, in which the causes of scrofula are investigated, under the following heads: 1. Hereditary influence. 2. The power of other diseases in the parent, and more particularly of the syphilitic taint, to give rise to scrofula in the offspring. 3. Influence of conception during menstruation. 4. Influence of the age of the parents. 5. Influence of frequent intermarriages. 6. Influence of the milk of a scrofulous nurse. 7. Contagion. 8. Influence of food, impure air, climate, electricity, light, humidity, tempera-

ture, occupation, &c. The opinions of the author on each of these points may be thus briefly stated.

The influence of a scrofulous parent in transmitting the scrofulous predisposition to the child is real, but of limited extent; and it does not appear that the scrofulous habit of the parent is more efficient in inducing scrofula in the child than an equal constitutional debility in the parent arising from other causes; in other words, an ailing parent is less likely to procreate a vigorous child than a healthy one, and a weakly child is more susceptible of scrofula than a healthy one. Mr. Phillips therefore denies, or all but denies, the hereditary nature of the scrofulous diathesis as an *essential* state of body.

The author's opinions on influence of immature years, or great age in the parents, may be stated in the same general terms; the child of such is liable to be weakly, but is not more exposed to scrofula than children weakly from other causes.

There is no proof of the inoculability or contagiousness of scrofula.

Climate and temperature bear no definite relation to the occurrence of scrofula. Neither does the mortality from scrofulous disease bear any direct ratio to the closeness of population.

Particular occupations and social conditions have greater influence on the general health than impure air *per se*, but they have no specific effect in producing scrofula.

Diseased nutrition is the cause of scrofula, but this diseased nutrition originates in various ways. Thus the congenitally weakly child may owe this condition to an impaired digestion, or the impaired digestion may be due to occupation, the respiration of impure air, &c. But the cause of diseased nutrition generally is insufficient food or improper feeding. Abundant and unwholesome food will, in the author's opinion, negative the power of other injurious influences; and, on the other hand, the purest air and the most healthy occupation will not obviate the tendency to scrofula, where food is insufficient in quantity or quality.

The *treatment* of scrofula is the next subject considered; and, in accordance with general custom, is divided into prophylactic and curative. The section of the former portion is exceedingly judicious, and contains rules respecting the feeding of infants and their subsequent education, which, though in nowise new, are worthy of attentive perusal.

The writer, in the curative treatment, opens by a history on the superstition of the royal touch, which we shall omit, as of no practical utility. The medicinal treatment, which is very briefly mentioned, includes, principally, the use of mercury, iodine, barytes, sea water, mineral waters, and alkalies. Mercury is justly stated to be unworthy of confidence. The efficacy of *iodine* is considered to be greatly exaggerated, and even when it does prove of service, its benefit is referred to its power in "modifying the mucous surfaces," and not to any specific anti-scrofulous action. The barytes, first recommended by Crawford, is, according to Mr. Phillips, little inferior to iodine, though its sphere of usefulness is more limited. It is chiefly applicable where the pallid complexion and languid circulation are accompanied by irritability of the mucous membrane. Mr. Phillips gives it in doses from half a grain to three grains in the day, never exceeding the latter dose. With respect to the beneficial influence of sea air in scrofula Mr. Phillips is seeptical; he considers that the same advantages would accrue from simple change of air. The same want of confidence is expressed as regards the mineral waters. [We have thus endeavoured to place before the reader a concise analysis of Mr. Phillips's recent publication. As a whole, we regard it as inferior to that of M. Lugol, for although there is a greater appearance of statistical accuracy than is met with in the latter,

we feel bound to declare that many of the inferences, more especially those in reference to the non-identity of scrofula and tubercle, and the per centage of scrofulous cases to the total sick community, are scarcely justifiable, the sources from which many of the data are derived being scarcely trustworthy. We are obliged also to differ from the author *in toto* in his opinions respecting hereditary influences, intermarriages, and the value of iodine. It is to be regretted, too, that the section on treatment is stated in such general terms, as we consider that the treatment of scrofulous diseases requires far more nicety of management than would be inferred from the cursory manner in which that portion of the work is handled. Nevertheless we are doing but simple justice to Mr. Phillips when we commend the extreme attention which he has paid to the subject, and recommend the work to our readers as one of extreme interest.]

The 'Northern Journal of Medicine' contains a series of articles on scrofula, now in the course of publication by Dr. H. Bennett.* We shall defer the notice of them until our next report, when they will in all probability be completed.

## § V.—*Diseases of the Skin, &c.*

Several communications of variable value, on the subject of skin diseases have appeared in the periodical literature of the preceding six months. Among the most useful of these we may mention an essay upon the syphilitic diseases of the scalp, by Mr. Acton;† on the treatment of chronic diseases, of the skin, by Mr. Hunt;‡ and on skin diseases in general, by Mr. Startin.§ A work, illustrated by magnificent plates, is also in the course of publication, by M. Cazenave,‖ and a highly practical series of papers on the same subject has likewise been contributed by Mr. Erichsen.¶

53. *Eczema.*—M. Devergie** has described a new form of eczema, which he calls nummular. This species may be local or general, and is in each case very difficult of cure. It appears under the form of small patches or groups of vesicles, of a size varying from the size of a shilling to that of a crown-piece. The secretion is not abundant, neither is there any elevated ring of inflammation, as in herpes; the itching is incessant. The author has always found this form rebellious to treatment, but has been most successful with the ointment of the bin-iodide of mercury.

In the treatment of eczema of the hands, Mr. Erichsen points out that, in addition to the ordinary treatment of eczema, the local variety of the disease, which is seen in certain individuals to affect the hands, requires for its cure the most absolute rest of the part, and that it is more tolerant of stimulating applications. The first thing, therefore, to be recommended is to give up any employment which requires movement of the hands, as unless this point be scrupulously attended to the rhagades will not close.

The topical applications most relied upon by the author are in the early stages and exacerbations, the water-dressing applied by means of oil-silk; and at a more advanced period, when the disease has become inactive, a solution of the nitrate of silver, in the proportion of one grain to the ounce, kept constantly applied in the same manner. To relieve the itching, a solution of soda, of the strength of four grains to the ounce, or half a drachm of dilute hydrocyanic acid and one drachm of the oxide of zinc, in eight ounces of water, will be found efficacious. The best application to the rhagades is stated

* April, May 1846.
† Lancet, Jan. 3 et seq. 1846.
‡ Ib. Jan. 10.
§ Med. Times, Jan. 1846.
‖ Leçons sur les Maladies de la Peau.
¶ Med Gazette.
** Annuaire de Médecine, 1846.

to be the unguent hydrarg. præcip. albi, either alone or mixed with a fourth part of citrine ointment, the part being at the same time kept motionless.

The local measures will be greatly assisted by a course of constitutional treatment. This must chiefly consist in the removal of gastric, intestinal, or uterine disturbance, and in the exhibition of vegetable bitters, with dilute nitric acid, or small doses of the bichloride of mercury. These means are especially serviceable in delicate and anæmic subjects.

In more obstinate and chronic cases, Fowler's or Donovan's solutions are recommended.

In very acute cases of eczema M. Trousseau* speaks in strong terms of commendation in favour of *mercurial* baths. He prepares these by adding three or four scruples of corrosive sublimate, dissolved in an ounce of alcohol, to fifty or seventy quarts of water. He says that he has used these baths for fourteen years in every variety of dartrous affection of the skin with the greatest advantage. He frequently orders as many as a thousand in a year and even in the cases of children, without ever having seen any evil results. He has had children placed in these baths half the skin of whose body has been destroyed by eczema, and no injurious absorption of the mineral has taken place, while the epidermis has been regenerated.

54. *Scabies, the means of distinguishing, &c.*—The means of distinguishing scabies from other eruption, with which it is frequently confounded, are thus stated by M. Gibert:

"The constant seat of election of this form of eruption, is one of the chief points in its diagnosis. The vesicles of scabies show themselves in the first place in small numbers, and distinctly isolated, at the base and inner aspects of the fingers. After a short time a few vesicles equally distinct appear on the wrist, close to the junction of the palm of the hand. Still later they appear in the fold of the elbow, and subsequently in the armpit, fronting the chest and abdomen. *Eczema simplex, herpes, prurigo, and lichen* neither originate in the same manner, nor follow the same successive development. *Prurigo* often occupies a great extent of surface of the skin, without their being a single papule upon the fingers or palmar aspect of the wrist, and, on the contrary, *eczema*, *herpes*, and *lichen*, invade the hands, and continue for an indefinite length of time without extending to other parts ordinarily occupied by scabies.

The different eruptions which resemble itch originate spontaneously, and do not exhibit the successive stages of progress seen in the latter disease; but, after remaining stationary for a time, or appearing to decline, they often become exasperated without appreciable cause. Again, the vesicles of eczema and of herpes more especially, instead of remaining distinct as in itch, are crowded together in groups.

The most difficult cases undoubtedly are those in which the complication with other eruptions causes a mixture of vesicles, papules, and even in the same subject; these cases however, are rare, and seldom occur before any topical applications have been made use of.†

Dr. Burgess‡ states, that he has recently had an opportunity of assisting (at the hospital of St. Louis, in Paris) at some interesting researches into the history of the acarus scabiei, and the treatment of the disease which it produces. Several patients were removed from the wards of the hospital, by permission of M. Cazenave, to the amphitheatre, where M. Bourgignon conducted the experimental researches. The hands of the patients, after being thoroughly

* Journal de Médecine de M. Trousseau, and Medico-Chirurg. Rev. April 1846.

† Journal de Connaiss. Méd. Chirurg. Juillet, 1845.

‡ Report of Medico-Chirurg. Society, March 24, in Med. Gaz. April 3, 1846.

washed with soap and water, were examined under the microscope, and one patient was selected in whom the disease seemed to be the most pronounced. Several acari were removed from each hand, and when examined by the microscope, seemed active and vigorous. The hands of this patient were then immersed in two vases filled with a strong alcoholic extract of stavesacre, and retained for half an hour. The hands were now examined by the microscope, and several acari removed. In this instance the remedy was not entirely effectual, as some of the acari were still alive. The remedy was again applied for half an hour, when not a single living acarus was discovered; they were examined under the microscope, and showed no signs of life. On the following day, the same experiment was repeated on another patient, using the same precautions, and with the same success, for on examining the acari, not the least sign of life was discovered in any. The patient was examined again on the following morning: he said he was entirely free from itching; the skin was paler, and there was no living acarus found in the parts to which the extract had been applied. The author states he has satisfied himself that it is not the alcohol that destroys the acarus, for when used without medication it has not succeeded. He concludes by referring to the advantages presented by this mode of treating itch over the ordinary treatment, viz. rapidity and cleanliness.

[This use of the Delphinium staphysagre is not new; the powder has long been employed to destroy pediculi of the head. (Vide Thompson's Dispensatory, art. Delphinium.) Ed.]

55. *Black Secretion from the Skin.*—Mr. Teevan* brought before the Medico-Chirurgical Society the following remarkable case:—A young lady, 15 years of age, was affected with a black discoloration of the forehead and upper part of the face. The discoloration was first observed on the left under eyelid, near the internal angle of the eye, first appearing as a brown spot, which gradually assumed a jet-black colour. The discoloration never appeared on other parts of the body; and on the forehead was accurately limited by the hair. By the use of soap and water, Mr. Teevan was able to remove sufficient of the black pigment to darken four basins of water as black as Indian ink. Under the idea that there was some imposition in the case, the patient was scrupulously watched after the matter was removed, when it was satisfactorily ascertained that it was a real secretion from the skin. During the period of Mr. Teevan's attendance the patient vomited a black fluid, which was found by Dr. Rees to be identical with that secreted by the skin of the forehead. The treatment pursued did not appear to have the least effect upon this singular case, but it subsided spontaneously after an attack of very severe colicky pains in the bowels. An analysis by Dr. Rees declared the matter to be chiefly composed of carbon.

## § VI.—*Therapeutics.*

56. *Therapeutic Value of Galvanism.*—In addition to the evidence already adduced (26) in favour of galvanism in disease, it may be stated that M. Raciborski speaks highly of its value in paralysis of particular nerves, and in neuralgia generally, but especially in that of the branches of the fifth pair. Having witnessed many successful applications of this kind in the wards of M. Bouillaud, the author was led to the employment of galvanism in other affections characterized by violent pain without inflammation, as in muscular rheumatism and lumbago. In this latter affection

* Med. Chirurg. Trans. vol. xxviii.

† Gaz. Méd.-Chirurg., and Med.-Chirurg. Rev. April 1846.

his experiments have been eminently successful, after other treatment had failed. The same may be said of rheumatism affecting the muscles of the extremities. It is not easy perhaps to state the *modus operandi* of the remedy, but it would seem to be by directly subduing the pain, which prevents the contraction of the muscles, that galvanism produces the instantaneous relief seen in some cases. Four or five cases are given which were relieved almost immediately by galvanism, or rather by galvanic acupuncture, inasmuch as needles were inserted in the parts where the pain prevailed, and then brought into contact with the battery. A very few shocks, which usually themselves gave considerable pain, sufficed to give relief.

"Since our notes were taken," says M. Raciborski, "we have had other opportunities of applying galvanism in analogous cases, and always with the same success; but as at present we merely desire to draw attention to this new mode of treatment, we need not cite these particulars. Nevertheless, we cannot refrain from signalizing the admirable effects which galvanism produces in the treatment of sprains. Every one knows that a sprain often exacts much time for its cure. When it implicates the ankle or knee, it is not uncommon to see patients deprived of the use of their limbs during several months. It is the violent pain felt upon the slightest motion of the parts (we are speaking of simple uncomplicated sprains) which retards the cure. The other symptoms are of little consequence. The other symptoms are speedily dissipated. Now, just as we have seen in lumbago, so in sprains galvanism relieves this pain instantly, and allows the patient to walk without lameness."

57. "*Firing*" *in Muscular Rheumatism and Lumbago.*—A novel mode of producing counter-irritation is greatly practised by Dr. Corrigan* as an admirable remedy in lumbago and analogous affections of other parts of the body. The remedy consists in a species of "firing," which is performed with an iron instrument, with a button-shaped extremity, heated to the temperature of boiling water. This instrument is applied for a few instants to many points of the integuments of the affected parts in succession. The pain is described as trifling, and the only visible effect produced is a slight inflammatory flush where the instrument has been applied.

58. *Iodine.*—Dr. Barbour† gives the following *resumé* of his experience of the therapeutic powers of iodine:

A. *Scrofula.*—If there be any article entitled to the appellation of specific, Dr. Barbour thinks that it is certainly iodine in ordinary scrofula, scrofulous ophthalmia, and white swelling. He employs in these diseases, the solution of iodine with hydriodate of potassa, with the ointment of the same, and the syrup of the hydriodate of iron; in the last-named disease he uses the tincture of iodine applied over the joint.

B. *Chronic visceral inflammations, indurations, &c.*—In chronic inflammation, induration, and enlargement of the spleen and liver, Dr. Barbour considers the following combination of great value:—Proto-iodide of mercury ℈j, socotrine aloes 3 ss, extract of hyoscyamus ʒj; make 24 pills, one of which is to be taken every night in the first instance, afterwards, each other night.

C. *Diseases of the urinary organs.*—Dr. Barbour has witnessed the happiest effects from the use of the proto-iodide of mercury in chronic nephritis and cystitis, and in enlargement of the prostate.

D. *Diseases of the uterus.*—In chronic inflammations with induration and enlargement of the uterus, Dr. Barbour considers iodine especially valuable.

* Dublin Hospital Gazette, March 1, 1846.

† Missouri Med. Journ., and Amer. Journ. Med. Sciences, Oct. 1845.

He usually prefers the proto-iodide in combination with the extract of cicuta and aloes. In amenorrhœa he recommends as follows: — Proto-iodide of mercury ℈j, socotrine aloes, dry sulphate of iron, and myrrh, of each ʒ ss; oil of savine, gtts. xx; to be made into 24 pills, of which one is to be given three times a day.

E. *Diseases of the chest.*—Dr. Barbour has found iodine of great value in most of the chronic diseases of the chest, particularly in chronic bronchitis, asthma, incipient phthisis, pneumonia in the second stage, and in chronic pleurisy with effusion. In chronic bronchitis he gives the iodide of potassium in combination with an expectorant syrup, made by boiling squill, seneka, and lobelia, of each an ounce, in half a gallon of water down to a pint; then straining, and adding a pint of honey, and again boiling down to a pint. In incipient phthisis, he administers the aqueous solution of iodine with tincture of digitalis, three times in the day. In pneumonia and pleurisy with effusion, he prefers the following prescription:—Hydriodate of potassa, powdered squill, and extract of cicuta, of each 3 ss; ipecacuan. grs. xv; make 20 pills, one of which is to be given every four hours.

F. *In chronic rheumatism*, he recommends hydriodate of potassa 3j, powder of colchicum 3j, extract of stramonium ʒ ss, made into 30 pills, one of which should be given three times a day.

G. *Ozœna.*—In this disagreeable affection he gives the aqueous solution internally, and injects it, considerably diluted, into the nasal passages. [Lugol's solution of from 1 to 2 grains of iodine to the part, may be safely used in these cases. Ed.]

In scrofulous ulcers, he applies the tincture locally, as he also does in *dropsy of the articulations.*

59. *Oxgall.*—The utility of the inspissated gall of the ox, in certain morbid states of the chylopoietic system, seems to be now established, mainly through the persevering experiments of Drs. Clay and Allnatt. The former of these writers has recently published a series of cases,* which add still farther to the medicinal reputation of the article. In a case of scirrhous breast with fungous ulceration, both the pain and offensiveness of the discharge abated after taking the gall. The same amelioration, though temporary, was also observed in a severe case of cancerous ulceration of the labia pudendi. In several examples of obstinate constipation, its alterative and aperient powers are exhibited in a very favorable light. Evidence is also afforded of its advantage in diarrhœa, with clay-coloured stools, and in dropsy after scarlatina. In reference to its therapeutic action in general, Dr. Clay observes that he believes the gall to be an invaluable remedy in all cases of sluggish action of the liver, accompanied by constipation, as well as in vitiated secretions of bile, producing diarrhœa. He, however, considers it of great importance to use a properly prepared article.

60. *Cod-liver Oil in Chronic Rheumatism.*—Dr. Bradshaw† describes, in the 'Provincial Medical Journal,' several cases of chronic rheumatism, some of which were severe, in which a cure was effected by the exhibition of train-oil internally, in doses gradually raised from a teaspoonful to a wine-glassful three times a day. He believes that the remedy acts beneficially by its stimulating effects. He considers the fine-drawn blubber-oil obtained from the whale, when obtained pure, to be quite as efficacious as that procured from the cod's liver. He is in the habit of administering the remedy in various vehicles, as circumstances require, or the condition of the patient demand, such as cinnamon and peppermint waters, thin gruel, milk, and the alcoholic potions, but

* Practical Observations on the Use of Oxgall, 1846. Reprinted from Med. Times.

† Prov. Med. Jour. Dec. 31, and Med. Times, Jan. 10, 1846.

gives the preference to a thin infusion of linseed, flavoured with lemon-peel, and sweetened to please the palate. The mode of giving the oil with this is in form as follows: a small quantity of infusion is poured into a glass, on which is added the oil, and again another small quantity of infusion upon it. In this manner the dose may be swallowed, and will slip down without offending the palate, and is generally well retained even by irritable stomachs. Another mode has been successful when many have failed, and will be found equally valuable; it is the yelk of an egg beat up with boiling water and sugar, with which may be mixed a dessert-spoonful of brandy, and on this the dose may be given without producing that nausea so frequently experienced when conveyed by other vehicles.

61. *Muriate of Barytes in Scrofula.*—The employment of this medicine has been revived by Dr. Walshe,* who details several cases including scrofulous disease of the knee and elbow-joints, enlarged glands, and ophthalmia, in which it was successful, the dose exhibited was $\frac{1}{12}$ grain three times a day.

62. *Valerianate of Zinc.*—Mr. Joseph Bell details four cases of obstinate neuralgia which yielded to this remedy after the failure of other powerful agents; the dose was $\frac{1}{2}$ a grain every six hours.

63. *Vinca Minor.*—An infusion of this herb ($\frac{1}{2}$ oz. to pint) is recommended by Mr. Weathers† in passive hemorrhages. Dose, an ounce three times a day.

64. *Local Application in Ulcers and Eruptions of the Skin.*—Dr. Kelly,‡ of Mobile, U.S., places great reliance on the following recipe, in ill-conditioned ulcers, eczema, &c.:—Oxymuriate of mercury, ℈j, oxyde of zinc ʒj, arrow-root ʒj. The part, after being well cleansed, to be kept continually powdered with the above mixture. Cases are given in confirmation of its utility.

65. *Ammoniacal Blistering Ointment.*—The following improved formula for this application is recommended by Dr. Goudret§ in preference to that which has hitherto been in use:

| | | |
|---|---|---|
| Take of lard | . . . . . | 32 parts. |
| " Oil of almonds | . . . | 2 " |

Melt the lard with the oil by the application of a gentle heat; pour them in the melted state into a wide-mouthed bottle, and add

| | | |
|---|---|---|
| Solution of ammonia | . . . . | 17 parts. |

Mix, by continual agitation, until it becomes cold. It is necessary to avoid the application of much heat in the preparation of this ointment. When well prepared it will produce vesication in about ten minutes, and will retain its properties unimpaired for about a month, if kept in a well-stopped bottle.

* Dublin Med. Press, Feb. 21, 1846. † Med. Times, March 7, 1846. ‡ Boston Med. and Surg. Jour. Feb. 1846. § Jour. de Pharmacie, and Dublin Med. Press, April, 18.

# II.

## REPORT ON THE PROGRESS OF SURGERY.

BY HENRY ANCELL, ESQ., M.R.C.S.

The publication by the Sydenham Society of the second volume of Adams's 'Paulus Ægineta,' comprising the sixth book, which contains everything relating to surgery as practised by the ancients, may be regarded as an important addition to our surgical literature, since the date of our last Report. Independently of the higher views which render the general diffusion of medical learning among all classes of the profession, a subject of congratulation, the present work is one of real utility. Every individual who aims at the improvement of any branch of his science must naturally desire to become acquainted with its history, which would be most incomplete if he were ignorant of the opinions entertained by the most illustrious of his predecessors. 'Paulus Ægineta,' with Adams's Commentary, gives a complete view of the knowledge possessed by the Greeks, Romans, and Arabians, and the surgical student, who cannot refer to the numerous writers before the time of Paulus, will find in the present volume all that is important in surgery to that period. In numerous instances the practical reader will be surprised at the accuracy of the opinions and the judicious character of the methods of treatment which it embraces. Moreover, illustrations are to be met with, in the present volume, of the undeniable truth, that under the observation of the ancients many branches of surgery had already made rapid strides, and that they have subsequently progressed but slowly, notwithstanding the numerous advantages enjoyed by the moderns.

We have also before us a translation for the Sydenham Society of the first part of 'Hasse's Pathological Anatomy,' by Dr. Swaine; being 'An Anatomical Description of the Diseases of the Organs of Circulation and Respiration;' 'A Practical Treatise on Abdominal Hernia,' by T. P. Teale, Esq.; a work 'On the Nature and Treatment of Cancer,' by Dr. Walshe; and 'Lectures illustrative of Various Subjects in Pathology and Surgery,' by Sir B. Brodie; all of which contain important surgical matter. There are also many cases and essays in the British Medical Journals of more than ordinary interest, particularly an analysis in the 'Edinburgh Medical and Surgical Journal' for January and April, of a work by Professor Tiedemann, 'On Arctation and Closure of the Arteries in Disease.' The intimate connexion of the last-mentioned subject with the principles and practice of surgery is such that we shall offer no apology for occupying a considerable portion of our space with a partial abstract of the analysis in question.

### § I—*Injuries and Diseases of the Arteries and Veins.*

1. After the blood itself, an acquaintance with the pathology of the arterial system is of the highest importance to the surgeon, as respects his principles

of practice. The object of Tiedemann's work appears to be the development of some of the most marked effects of ARTERITIS, a disease which, according to the learned Professor's views, is of much more frequent occurrence than we are accustomed to believe, and produced by numerous causes, both external and internal, continually in operation; amongst the latter of which the use of alcoholic fluids is stated to be one of the most frequent and most active in its effects.

The author has collected all the cases of *Arctation and Closure of the Arteries* which have fallen under his own observation, as well as those hitherto recorded by others; he elucidates the nature, origin, and effects of obstructions, the means of recognizing their existence, and the treatment necessary to afford relief. The following is a brief recital of the Professor's original cases:

1. *Occlusion of the Superior Mesenteric Artery and of both Superficial Femoral Arteries.*—This was found in the emaciated corpse of a man aged about 60. The trunk of the superior mesenteric artery was completely closed from its origin, for the space of fifteen lines; the coats were accurately adherent, neither thickened nor containing any trace of earthy concretion, but converted into a thin ligamentous cord, as in arteries that have been ligatured. The blood had manifestly flowed during life through branches from below the obstruction, anastomosing with enlarged branches from the hepatic and inferior mesenteric arteries. In the same body, the trunk of the superficial femoral artery had undergone a spindle-like contraction, and was completely closed in its whole course through the arch of the tendon of the adductor muscle, to the ham, and converted into a ligamentous cord. The same thing had occurred in the right lower extremity, and the circulation in the leg and foot on both sides was carried on through dilated anastomosing branches. Many earthy concretions were observed in various arteries in the body, but none in the obliterated mesenteric and femoral arteries, a fact which, in the Professor's mind, goes to prove that the obliteration was the consequence of adhesive inflammation of the inner coat of the respective vessels; which had taken place long before the death of the patient.

2. *Occlusion of the Left Axillary and Humeral Arteries in Gangrene of the Hand and Fore-arm.* (38.)

3. *Closure of the Lower Part of the Left Humeral Artery.*—This was found to the extent of two inches in the body of a man aged 36; the anastomosing branches being greatly dilated.

4, 5, 6, 7. The four cases which follow are instances of *Contraction of the Orifice of the Aorta*, in consequence of a morbid state of the semilunar valves.

8. The case of a woman, 70 years old, who had laboured several years under symptoms of *angina pectoris*, death having taken place in one of the fits. The heart was unusually small and fatty, its parietes thin and lacerable: *both coronary arteries, from their origin, were converted into hard earthy canals.* The orifice of the right coronary artery scarcely admitted a small probe, the branches and twigs in the fleshy substance of the heart appeared hard and inflexible, the walls of the aorta also contained calcareous and atheromatous masses. There was no valvular disease.

In a man, aged 61, subject to angina pectoris, who committed suicide from tædium vitæ, the heart was very small, its walls thin, soft, and flabby; *both coronary arteries with their minutest branches were ossified.* The orifice of the right one was entirely closed, there was a thin piece of bone in the investing part of the pericardium, but no valvular disease.

* Edinburgh Med. and Surg. Journ. Jan. 1846, p. 111.

The author found closely corresponding circumstances in four other cases.

We have here, according to Professor Tiedemann, a lucid illustration of the effects of impaired nutrition, from diminished afflux of arterial blood to the substance of the heart.

9. A remarkable case of *Contraction of the Thoracic Aorta to complete Closure*, which had probably existed from birth, or at all events for many years, in which the arctation of the aorta had little share in the final disease and death of the individual. (Vide Ext., art 63.)

10. *The Abdominal Aorta above its Bifurcation*, in a female of 70, was found very firm, and *completely closed to the exent of two inches*, by a dark red, incompressible, leather-like, fibrinous clot, which consisted of layers, and could not be cut with a knife, firmly attached to the inner coat of the artery and extending into the iliacs.

11. A case of arctation of the orifice of the pulmonary artery, from mutual adhesion of the semilunar valves, which had given rise to symptoms of cyanosis.

Professor Tiedemann then gives the instances of contraction or obliteration of arteries which have been recorded by other authors: 1. Cases of narrowing of the orifice of the aorta; 2. Narrowing and closure of the coronary arteries; 3. Arctation of the aorta, nine cases; 4. Obliteration of the aorta, four cases; 5. Occlusion of the abdominal aorta, eight cases; 6. Occlusion of of the innominata, three cases; 7. Occlusion of the carotids, seven cases; 8. Occlusion of the subclavians, three cases; 9. Occlusion of the axillary artery, three cases; 10. Occlusion of the brachial artery and vessels of the fore-arm, three cases; 11. Occlusion of the cœliac, superior mesenteric, and renal arteries; 12. Occlusion of the common iliacs and branches; 13. The simultaneous occlusion of several arteries, three instances, referred to extensive inflammation of the arterial system. The Professor refers these remarkable and interesting cases to inflammation of the arteries, and thinks if practitioners were better acquainted with the symptoms and diagnosis of arteritis, instead of prescribing port wine, opium, and bark, as at present, in numerous cases they would resort to frequent bloodlettings and an energetic antiphlogistic treatment. 14. Contraction and closure of the orifice of the pulmonary artery, twelve cases.

It appears from the cases recorded, that arctation and closure of arteries is a more frequent circumstance than hitherto imagined, and there is scarcely an artery in the human body which has not been found narrowed, closed, and impervious to blood.

The morbid conditions which may terminate in this lesion are:

1. Inflammation of the inner coat of the arteries; 2. Growths and morbid excrescences of the inner coat; 3. Deposits of earthy concretions or purulent matter between the coats; 4. Clots of blood which act as plugs, and close the tubes of arteries.

In inflammation of the inner coat, lymph is deposited, and the fibrous coat is contracted as when it has been inclosed in a ligature, the area of the artery being thereby narrowed or closed. It may be occasioned by external causes, as wounds, ligatures, the pressure of aneurismal swellings, hypertrophied organs, &c., or by morbid internal irritations. In the case of wounds inducing inflammation, pressure is most commonly conjoined, and where this is not the case, the wound fails to induce adhesive inflammation, an aneurismal tumour being most frequently the result,—an almost invariable result in vessels of large size. Lacerated and contused wounds almost uniformly produce so much laceration of the inner and middle coats that the ends retract, the motion of the blood is arrested, and coagulation and obliteration follow. The

ligature is effectual, not only on the latter account, but because it embraces compression also. A blow on a limb may in like manner be followed by inflammation, agglutination, and obliteration of an artery.

Inflammation of an artery from internal causes is inferred, not from redness alone, but from the inner coat being reddened, thickened, softened, rough, and covered with coagulable lymph; these effects, with opacity and detachment of the inner tunic, take place uniformly in arteritis from internal causes, exactly as they do from the ligature, pressure, or from wounds. An evident constriction of the walls of the vessel is also an invariable feature. The tube of an inflamed artery is never so filled with effused lymph that it preserves its diameter, presenting a firm cylinder filled with lymph, and thereby obstructed. There is always a progressive diminution in its diameter as far as the inflammation extends, even to the abolition of its area; there ensues, in general, complete adhesion of the walls and closure of the channel, the artery being converted into a ligamentous cord.

After admitting that congenital contractions and obliterations of the large vessels are frequently met with, and affirming that they probably arise from inflammation in the fœtus, Professor Tiedemann affirms that all the cases which he has collected, of aretation and closure of the aorta with evident chording, had been produced after birth, and were the result of previous inflammation. In favour of this opinion, he observes that the patient had in early life enjoyed good health, and had throughout presented no symptom of disturbance in the circulation, and the arteries gave no evidence whatever of previous disease of their tunics. Sometimes, during a long life, the individuals had enjoyed good health and strength, and performed many laborious duties, until the occurrence of those symptoms which took place not long before death.

The reviewer of Tiedemann's Essay denies the exclusive influence of inflammation in producing this lesion, affirming that something else is also present. He states that it is not proved that the contraction or obliteration did not take place long before the occurrence of the symptoms; that we are not sufficiently acquainted with the functions of the blood-vessels to maintain positively that this lesion is sufficient to interrupt the motion of the blood towards the abdominal viscera and lower extremities, in the cases recorded, particularly in Tiedemann's ninth case (Extracts, art. 63, p. 132), the thoracic aorta being obliterated, the increased size of the intercostals and of other arteries was quite sufficient for the purpose; that the enlargement and tortuous disposition of these arteries could not have taken place within a short time, but must have occurred at a very early period of the existence of the individuals; that persons who have died with this lesion have been cut off at all ages, in one case as early as seven years; that in every one of the cases the aretation or obliteration took place at the same spot—at or a little below the insertion of the *ductus arteriosus;* that in all the cases the indentation was greatest at the convex side of the artery; and that in all the cases the appearance of the contracted spot indicated an aretation of long standing. This uniformity in all the cases leads, in the opinion of the reviewer, to the inevitable conclusion, that the obliteration was determined by the same cause—the extension or prolongation of that action which obliterated the ductus arteriosus. The closure, or adhesive inflammation, which begins at the aortic end of the ductus arteriosus is prolonged into the aorta, and it is possible that a degree of the same action may be there commenced, and produce the aretation and obliteration.

Adhesive inflammation, according to Professor Tiedemann, is the cause, in by far the greater number of cases, of aretation and closure of other arteries in other regions of the body, and to the same cause he refers the mutual adhesion and concretion of the semilunar valves, both of the aortic and of the pulmonary arteries.

The second cause of obliteration of arteries is growths from the inner coats and from the semilunar valves, as products of inflammation. The observations now collected may be justly admitted to show that the inner coat of the arterial system, and probably the fibrous tunic also is liable to the formation of deposits, and that the tendency to these morbid productions is very much under the influence of certain causes or agents, which may sometimes operate as remote causes, and in other instances as exciting causes. Thus, the excessive and habitual use of spirituous liquors is a cause of very considerable influence; the use of mercury also induces various morbid changes in the arterial tunics; rheumatism, by inducing inflammation in the lining membrane of the heart, must be regarded as a cause potential; and gout often exerts a morbid action on the arterial tissues, and in the cardiac membrane and valves. Tiedemann leans to the view that these causes produce the excrescences in question, through the medium of inflammatory action. At first the growths are soft, compressible, and easily detached, progressively they become firmer, and acquire often a gristly hardness; lastly, earthy matter is deposited in them, and they become as hard as bone, though they retain their original shape; hence the distinction between the globular and warty excrescences, between the albuminous and fibrinous granulations, or the bony and cartilaginous excrescences, are equally unsatisfactory; and from the facts given by Lancisi, Corvisart, Fenema, and Bouillaud, he concludes it is sufficiently proved, that the wart-like growths from the inner surface of the heart, on the valves and in the arteries, must be regarded as the result of previous inflammation of the parts.

The arctation of arteries from the compression exerted by aneurismal tumours takes place in one of three modes:—1. By the sac pressing upon a neighbouring artery; 2. By the fibrinous layers of the sac being continued into the artery and stopping the canal; 3. By the sac, and the arteries proceeding from it, assuming the adhesive inflammation, and depositing lymph, by which their walls are agglutinated and their channels closed.

These processes take place only in aneurisms in which both the inner coats are lacerated, and blood is effused into the cellular texture which forms the sac; when these aneurisms, filled with solid fibrinous clots, have such a position that they are inclined towards the arterial trunk, and exert pressure on the same above or below the sac, or on one of the neighbouring arteries, they cause closure of these vessels.

The contraction and closure of arteries from swellings of different sorts* in their neighbourhood, is also the effect of pressure and inflammation. Professor Tiedemann describes the narrowing and closure from deposit of earthy concretions in the walls, and from the presence of clots of blood. This last he regards as most frequent in aged persons, the clots being found in arteries containing earthy concretions which have penetrated the internal membrane, the blood depositing flocks of coagulable fibrine, which adhere to the tips and edges of the concretions, and form successive layers, until they finally close the artery, as happens when a ligature is applied.

Adhesive inflammation of the arteries may happen as well to the young as to the aged of both sexes. The cases which the author has collected are arranged under the following heads:

I. *Narrowing or closure of the arteries from agglutination with lymph or fibrinous clots.*

II. *Occlusion of arteries from adhesive inflammation, in consequence of the pressure of aneurism.*

III. *Narrowing and agglutination of arteries from adhesive inflammation, by pressure of enlarged lymphatic glands or other swellings.*

* Edinburgh Med. and Surg. Journal, April, 1846, p. 413.

IV. *Agglutination of the semilunar valves of the aorta and pulmonary artery, in consequence of adhesive inflammation.*

V. *Growths on the semilunar valves and the inner surface of the arteries, in consequence of inflammation.*

It appears that among 77 cases there were found 50 males and only 27 females, showing that the male sex are more frequently the subjects of inflammation of the arteries and their consequences than the female sex. The cause is manifestly to be sought in the circumstance, that men being devoted to a more laborious mode of life, with greater corporeal efforts are more frequently exposed to violent vicissitudes of heat and cold, and that they use spirituous drinks more than women, which irritate the vascular system.

*Arteritis* evinces several degrees of extensiveness. In rare cases it attacks all the arteries, and is at the same time associated with inflammation of the inner membrane of the heart, and with inflammation of the veins; often with genuine endocarditis. The latter is often associated with inflammation of the aorta and pulmonary artery. In gangrene of the lower extremities the whole of the arteries of a limb are frequently attacked, and the disease spreads into the iliac arteries and the aorta. It is usually confined to an individual spot, when the vessel has suffered from pressure.

Among the occasional causes the author places youth and the middle periods of life, especially among the plethoric, strong, and vigorous, who are mostly in the open air, undergo great corporeal efforts, live much on animal food, and are addicted to the use of spirituous liquors. Sudden suppression of the transpiration by violent chilling while the body is heated, and the motion of the blood quickened and forcible from great muscular action or the abuse of spirituous liquors, or both together. Violent and long-continued corporeal exertions, as rapid running, dancing, climbing mountains, rowing, lifting and drawing heavy loads, and excessive heat, by which the action of the heart and blood-vessels is accelerated and rendered more forcible; and also other laborious occupations in constrained positions.

The reviewer admits that these circumstances may be exciting causes of arteritis, and are doubtless of consequence, but affirms that they could not produce the effect alleged, except where there is previous organic disease.

Arteritis is often found as an adjunct in ardent exanthematous diseases, especially when, at the period of their eruption, tumultuous action of the heart, and a very rapid and irritated pulse had taken place. The same is observed after repelled cutaneous eruptions, in acute rheumatism and gout, hooping-cough, syphilis, and the repeated but unguarded use of mercurial medicines.

Professor Tiedemann holds that earthy concretions consist in the first place of albuminous exudation within the arterial walls, in the form of whitish or pale yellow points, often scarcely the size of pin-heads. By analysis they are found to contain lime and sulphuric acid, besides albuminous organic matter. They gradually increase in size and coalesce, and ultimately form calcareous patches.

The atheromatous matter found between the earthy concretions and the fibrous coat always appears first when the white specks and earthy concretions are formed, and is therefore secondary to the latter, and must be viewed as an effect of already existing calcareous deposits. At the spots where atheromatous matter is formed around earthy concretions, the fibrous tunic is softened and detached or destroyed, and the inner coat is destroyed at the edges of the earthy scales. Hence the blood comes in contact with the earthy concretions, and is pressed into the cavity which contained the atheromatous matter, and by the process of softening the concretions are constantly

more detached from the arterial walls, and sometimes they are separated altogether, and projected into the canal, where they are carried away by the current of blood. The atheromatous matter is, in short, a sort of pus, and the result of a genuine suppurating and ulcerating process. Ossification of the arteries is not a necessary condition of advanced age, and when it takes place it does not increase in the same proportion in which the individual advances in life; it is a morbid product, a result of morbid action. Professor Tiedemann holds the white specks which constantly precede the formation of earthy concretions or bony patches to be products of a morbid irritative condition of the arterial walls, consisting in inflammation, mostly chronic, but sometimes acute, and a simultaneous effusion of plastic lymph from the inner coat of the arteries. He regards the deposits of calcareous scales at a later period as no more than an effect of an irritative state and an inflammatory process. This inflammation is very often of rheumatic or gouty character, and most usually takes place in those who live freely on animal food, take much wine or strong liquor, and otherwise live intemperately and luxuriously.

*Acute Arteritis* is particularly distinguished by great irritation in the vascular system. The heart beats violently, rapidly, and tumultuously; its actions are manifest and audible, and are at the same time represented by the patient as very distressing. The pulse is accelerated, and all the superficial arteries, the carotids, the facial, and the radial throb violently, and present a sort of vibratory beating. The pulse is very hard and tense. In the course of the arteries the patients feel great heat, and more or less intense pain, aggravated by touch. In cases of more violent and more extensive arteritis, the pulse presents the symptom called "double beat" (p. dicrotus). Quick respiration often takes place, and in several cases the respiration is impeded in consequence of the blood accumulating in the vessels of the lungs. There is a feeling of internal burning heat—the καυσος of the ancients was probably an arterial inflammation. The patients are restless and toss about in bed, unable to continue in one position. They are sleepless or disturbed by bad dreams. The secretions are suppressed, the skin dry and burning hot, the countenance flushed, the mucous membrane of the mouth, tongue, and throat hot, and the individuals suffer an intense thirst, longing for cooling and acid liquors. The urine is scanty, red, and without precipitate.

When the calibre of the arteries in the progress of the disease is gradually narrowed by effusion of lymph, and the contraction of the fibrous coat, and the collateral arteries in the interior begin to enlarge, the pulse below the inflamed spots is irregular, small, feeble, often scarcely perceptible. In large arteries, as the carotid and subclavian, a bellows-murmur has sometimes been heard below the inflamed spots, which arises from the blood being urged with greater force. Finally, the pulse fails altogether in the closed spots, and the obliterated artery feels like a hard chord. With the obliteration of the arteries the warmth of the members diminishes, and they show a great tendency to become cold. Then sensibility is diminished, and there follows the sense of their being asleep. In general, patients are no longer able to move their limbs voluntarily. Serum is accumulated in the cellular tissue, causing œdema; afterwards gangrene may follow. When several large arteries are closed, and the blood thereby is moved with difficulty, blood accumulates in the internal organs, and hemorrhages take place. Debility increases, and very commonly the patient expires suddenly.

Amongst the consequences of closure of the arteries is gangrene, but, after all, ossification of the arteries seems to act in general as a predisposing cause only, and in those so predisposed, the pressure of a tight shoe, a blow on the foot, excessive cold, perhaps intense heat, cutting a corn or bunion, paring

the nails even, may be followed by inflammation, terminating in gangrene. In *gangrena senilis*, however, the blood coagulates, not in consequence of gangrene, but gangrene takes place because the motion of the blood is impeded; with this is connected coagulation of the blood which has ceased to move, and this extends until the motion of the blood ceases even in the collateral vessels. *Arteritis* may be a cause of this spontaneous gangrene, but it is an error to suppose with Dupuytren, and many others, that it is the most frequent cause. Tiedemann thus differs from Dr. Carswell, who contends that inflammation of the arteries is never a cause of this variety of gangrene, and this would appear to be Sir B. Brodie's opinion.* Tiedemann distinguishes two kinds of *dry* gangrene, where occlusion of the arteries exists:—1. Dry gangrene, in consequence of acute *arteritis*, pursuing a rapid course, making rapid progress, mostly with symptoms of typhus fever, and killing sometimes in a few days; and 2, *gangrena senilis*, which runs a chronic course.

The process of stoppage and reparation, both of *gangrena senilis* and gangrene from acute *arteritis*, is as wonderful as it is infrequent. The gangrene ceases to spread, and at the limits between the dead and living parts a red line appears on the skin at which the process of ulceration begins, by means of which the dead parts are separated from the living. Above the line the cuticle is elevated, and below it serum is effused. After some days there is seen below the separating cuticle a furrow with purulent matter, and at this spot proceeds gradually the separation of the living from the dead parts by absorption and suppuration. The *cutis vera* becomes progressively thinner, and is separated, and the subcutaneous cellular tissue is dissolved. The connexion between the muscles is then destroyed, afterwards that between the tendons, the obliterated vessels, and the nerves. On the suppurating surface of the living parts are formed granulations, and cicatrization follows. The reviewer remarks that this view is much more applicable to gangrene from arteritis; in the gangrene of the aged the disease usually proceeding steadily to a fatal result.

Tiedemann pronounces amputation to be useless in both forms of disease, and particularly so in that which takes place from arteritis.

The disturbances which arise in the animal economy from narrowing of the aortic orifice and the symptoms therewith connected, the effects of adhesive inflammation of the inner membrane of the pulmonary artery, producing a contraction of its orifice, and the various complications of these lesions, with their symptoms, and the consequences of arctation or partial closure of the coronary arteries of the heart, are described in the latter parts of the work, and the review contains some interesting matter on these conditions, particularly on the subject of *angina pectoris*, but as the latter belongs rather to the practice of physic than of surgery, we must pass it over in this place, merely stating that the Professor considers the idea of this disease being a neuralgia of the cardiac nerves as a great error, the *neuralgia cardiaca* being an affection totally distinct from *angina pectoris*.

The space allotted for surgery in this abstract will not admit of a more extended account of this important work; we can only inform our readers, in the language of the reviewer, that Professor Tiedemann has bestowed on the subject the most extensive research, that the work presents a complete view of it in all its aspects and relations, and that the pathological reader will find everything requisite to be known on the obstructions, arctations, and obliterations of the arterial system, and their multiplied effects. The review is very complete and very ably done—perhaps we should state that the most

* Lectures, 1846, p. 355.

important difference of opinion between the author and the reviewer is, that the latter imputes fewer of the cases of aretation and elosure to arteritis as a cause, than the author himself does; and in eoncluding our notice of the articles, it is worthy of remark, that Hasse regards arteritis as a very rare disease, most frequently originating from traumatie causes. If Professor Tiedemann's views are eorrect, and the greater number of the more manifest lesions of the arteries in the larger trunks are the effects of arteritis, produeed by the exeiting eauses enumerated, the inference may be drawn, that analogous lesions not quite so obvious, and not at present deteeted, most probably result from the same eauses in the smaller braneches, and even in the arterial eapillaries within the membranes and the very substanee of the organs; and that consequently arteritis must play a mueh more important part in general pathology than has hitherto been believed.

Besides the general subjeet of arteritis thus brought before our readers, the medical press of the last six months eontains as usual a great number of individual eases of disease of the vaseular system, some of whieh have found a place in our extracts, and a few only of the others, comprising points of interest, ean now be referred to.

2. *The Cure of Aneurism by Compression.*—Additional proofs have been afforded of the effieacy and permanency of this mode of treatment. At a meeting of the Surgieal Soeiety of Ireland, held on Saturday, January 10th, Dr. Bellingham* communieated an aeeount of the dissetion of a subjeet who had been cured of popliteal and femoral aneurism (in opposite limbs) by compression. The patient was a man-servant, about 35 years of age, and was admitted into St. Vincent's Hospital, on the 19th of Deeember last, with aneurism of the aorta, whieh terminated fatally by rupture into the left pleura, on the 25th of the same month. He had been twiee previously in the hospital, having been admitted in Mareh, 1843, labouring under popliteal aneurism on the right side; the treatment by eompression was adopted, and he was diseharged eured in June in the same year. He was readmitted in June, 1844, labouring under femoral aneurism in the opposite limb; eompression was again employed, and he was dismissed well in September of the same year, and returned to his oeeupation. The following is the aeeount given of the appearanees observed in the arteries of the limbs on examination after death.

The arteries of the lower extremities were injected from the abdominal aorta. The femoral artery upon eaeh side was seen to be quite pervious down to the site of the original aneurismal saes; on the right side (on whieh the popliteal aneurism had existed), to near the popliteal space; on the left side (where a femoral aneurism low down had existed), to the tendinous canal formed by the adduetor magnus and vastus internus museles.

At the site of eaeh aneurismal sae the artery was quite impervious, and presented the appearance of a solid, thick, flattened band; and at these two points the vein was so firmly adherent to the artery, that the two could not be separated. Indeed, through the whole eourse of the femoral arteries upon eaeh side, the vein was more intimately attaehed to the artery than in ordinary cases, so much so, that had the operation by ligature been performed, the femoral vein eould not possibly have eseaped injury. The femoral arteries appeared to be rather smaller than usual, while the profunda and all the braneches whieh proceed from it, particularly the perforating and eireumflex arteries were enlarged, the branches whieh eome off before the femoral artery divides, were likewise enlarged. Below the site of the aneurismal sacs the continuation of the canal of the main artery was eontracted on both sides,

* The Dublin Med. Press, Jan. 21, 1846.

and the anterior and posterior tibial arteries in each limb were diminished in diameter near their origin.

The following propositions were laid down by Dr. Bellingham, as being clearly established by this case:

1st. That to cure an aneurism by compression such an amount of pressure is never necessary as would cause inflammation and adhesion of the opposed surfaces of the vessel at the point compressed. Examination of the preparation, produced by Dr. Bellingham, fully bears out the correctness of this proposition, as the femoral artery upon each side is seen to be pervious and uninjured down to the site of the original aneurismal sacs, at which points only its channel is obliterated.

2d. That it is not necessary to carry the pressure so far as completely to intercept the circulation in the artery at the point compressed, but that the consolidation of the aneurism will be more certainly brought about, by allowing a feeble current of blood to pass through the sac; in fact, that to apply compression successfully, the velocity and force of the current through the artery leading to the aneurism are to be diminished, while the amount of blood passing into the sac is to be lessened, by which the deposition of fibrine will be encouraged, until the sac no longer permits of the entrance of blood. A cure will then be effected in the manner in which nature, under the most favorable circumstances, brings about the spontaneous cure of aneurism.

3d. That the mode in which compression effects the cure of aneurism seems to be more simple, and to require less assistance from nature than the ligature. For instance, when a ligature is placed upon an artery in the usual situation, at a distance from the aneurismal sac, to prove effectual it must cause the obliteration of the vessel at the point to which it is applied; the blood contained in the sac, or that which finds its way into it by the anastomosing branches (as there is no *vis a tergo*) coagulates, and the main artery of the limb comes eventually to be obliterated, both here and at the site of the ligature; whereas, after a cure by compression, the artery is obliterated *only at the seat of the aneurism*.

This dissection is most important as illustrating the *modus operandi* of the remedy. Several additional examples of its efficacy have been placed on record. Amongst others, a case of popliteal aneurism, cured by compression, by S. R. Dartnell, Esq., Staff Surgeon, Fort Pitt.* Two wooden clamps, with screw pads, were applied to the thigh, making pressure on the femoral artery, the one in the groin, the other in the lower third of the thigh, all bandages being previously removed, and the patient instructed to regulate the pressure of the pads according to his own feelings, relaxing one and tightening the other, as the pain from either became irksome. The point of interest in the case is the rapidity of the cure. The tourniquets were applied on the 3d of August, and on the 10th (the seventh day) were removed altogether. The pressure was not so great at any time as wholly to obstruct the current of blood through the femoral artery, nor was it sufficient to produce even the slightest abrasion of the cuticle. On the 15th day, the patient was out of bed, and in little better than two months and a half he was able to resume his duties as a soldier. Six months afterwards there was a slight degree of weakness of the limb and occasional slight numbness, but no trace whatever of the aneurismal tumour.

A case has also been treated successfully by compression, by Mr. Storks,† at the Blenheim-street Dispensary, reported to the Medical Society of London. Signoroni's tourniquet was employed. In the discussion which ensued it appeared to be generally admitted that no surgeon should tie the femoral artery

* The London Med. Gaz. March 1846, p. 464. † Ib. p. 571.

until compression had been tried and failed. A successful case is also given by T. Mackern, Esq.*

These cases are illustrations of the efficacy of pressure employed, upon the improved principles of the Dublin surgeons (Abstract, vol. i, p. 233); but Mr. Thomas Salter,† of Poole, records a case which occurred to him some years ago, of circumscribed false aneurism of the brachial artery, resulting from a wound inflicted with broken glass, in which pressure, by means of a linen compress containing a piece of sheet-lead, placed over the aneurismal tumour, and a compress placed over the course of the brachial artery, from the bend of the elbow to the axilla, the whole secured with adhesive straps, and a calico roller applied so as to compress the artery and the aneurismal sac efficiently, effected a cure. The treatment was persevered in for about six months, and after the expiration of about six years, the patient dying of phthisis, Mr. Salter had an opportunity of examining the state of the artery. The aneurismal tumour having been originally about the size of a walnut, the remnant of the contracted sac was about the size of a small horse-bean. An aperture was found leading from the artery into the sac, about two lines in length, in the direction of the axis of the artery; the edges of the aperture were rounded and smooth, and lined by the inner coat of the vessel, in close apposition, until forcibly separated. The current of blood appeared to have flowed over the opening without entering the aneurismal sac. The sac was empty, its cavity very small, and apparently it had not admitted blood into it for a considerable time.‡

A case is described also by Mr. Luke, in the 'Medical Gazette,' of May, 1845, where a large femoral aneurism existed in the upper part of the thigh. It was covered with adhesive plaster and bandaged. When the dressings were removed five days afterwards, the formerly soft and compressible tumour was found hard and unyielding, as well as somewhat painful on pressure. Its pulsatory movement had entirely disappeared, and no pulsation could be felt in any of the arteries of the limb. The leg felt colder than the other. The bandage was reapplied, the limb enveloped in wadding, and a mercurial plaster applied to the swelling, and after about seven weeks, the patient having left the hospital for ten days with the tumour considerably diminished in size, the foot occasionally numb, and sometimes suffering pain in the calf of the leg in going up a stair; there had been no return of pulsation in the arteries.

Mr. Harrison,§ however, of the Bristol Infirmary, relates a case of popliteal aneurism, in which the attempt to cure the disease by pressure failed. Weiss's presse artère was employed, one pad being placed over the femoral artery at the groin, and the other on a small splint behind the great trochanter; the limb being also firmly bandaged from the foot to the groin. When the pressure was sufficient entirely to interrupt the current of blood through the vessel, the patient became very uneasy, and could seldom endure it longer than half an hour; still a degree of pressure, allowing only a feeble pulsation in the aneurismal sac, was kept up for many days, and occasionally the current of blood was altogether arrested. The irritability of the patient was so great, that the plan was ultimately abandoned, but the treatment having been persevered in for a fortnight, the collateral circulation appeared to be decidedly influenced, as pulsation was felt in the articular arteries about the knee, when completely arrested by pressure of the femoral artery at the groin. Ultimately the femoral artery was tied. Mr. Harrison makes the suggestion, that the temporary employment of the presse artère on the distal side of the aneurism,

* Lancet, May 2, 1846, p. 452. † The Prov. Med. and Surg. Jour. Dec. 3, 1845.
‡ The Northern Journ. of Med. Jan. 1846. § London Med. Gaz. Oct. 1845, p. 966.

immediately below the seat of the disease, might prove serviceable in developing the anastomosing branches previous to tying the artery in cases where compression upon the cardiac side is impracticable.

The same surgeon relates a case* of aneurismal tumour about the size of a small walnut, seated at the bend of the right elbow, in which pressure was maintained upon the brachial artery with tolerable steadiness, but slight pulsation was seldom absent from the tumour for any considerable period during the early part of the treatment; the pressure having been persevered in for about six weeks, the disease was cured.

This statement of facts, relating to the treatment of aneurism by compression, cannot fail to interest our readers, and their interest on the subject will be increased in no slight degree by the reported success of Dr. Goldsmith with pressure applied at the distal side of the tumour (Ext., art. 53, p. 117); upon the principle on which Brasdor proposed deligation of the artery on the same side.

3. *The Cure of Aneurism by Ligature.*—Mr. Kirby† describes two cases of aneurism treated by ligature without confinement to bed, with successful results. The first patient neglected all rules as to rest and quietness from the first; on the day after the femoral artery was tied he walked a considerable distance, and continued to do so. In the second case, the operation having been performed in the groin, the patient resisted hospital restraint, and left on the third day. Mr. Kirby remarks that operators have not only experienced great anxiety as to the degree of force they apply when an artery is being tied, but have also enjoined strict *repose*, and that these cases are calculated to abate the great solicitude which is felt on the latter subject. We may add, however, that notwithstanding these cases, the prudent surgeon is not likely to be induced to neglect the usual precautionary and curative methods.

4. *Ligature of the Posterior Tibial Artery.*—A discussion has arisen on the subject of tying the posterior tibial artery. Our extracts contain a case by Dr. Hall,‡ in which the operation was performed by dividing the muscles above and below the seat of injury (art. 51); whereas Mr. B. Cooper appears to think that the artery can be readily found and secured by separating the *soleus* from its attachment to the tibia, and that this operation is better. Dr. Hall recites the language of Mr. Guthrie to show the difficulties of the latter operation, which is, "painful, bloody, tedious, and dangerous;" and the only justification for performing it is, that it is not usual to make a longitudinal incision in the muscles of the calf of the leg. Dr. Hall ventures to express the opinion that the fears of surgeons, as to the divided muscular fibres not uniting, are in a great measure groundless; and he remarks, that, at any rate, his case adds another to those already recorded, in which the posterior tibial artery has been secured in the way recommended by Mr. Guthrie, the wound in the muscles healing rapidly, and the recovery of the patient being complete.

Dr. Hall also lays particular stress upon the rule of practice when called to a patient immediately after the injury of an artery, to enlarge the wound and to tie the artery above and below the part that has been opened.

5. *New Operation for the Ligature of the Axillary, Ischiatic and Internal Pudendic Arteries.*§—For the axillary artery make an incision along the course of the vessel on the inner side of the coraco-brachialis muscle, over the line which separates the middle from the anterior third of the axilla. The nerves present. Four principal trunks surround the artery. Whichever two nerves come first into view, counting from before backwards, without seeking to

* Loc. cit. † The Dublin Med. Press, Dec. 10, 1845. ‡ The London Med. Gaz. Feb. 1846, p. 234. § Rev. Méd. Oct. 1845, p. 497.

recognize their relations with other parts, or to determine their names, separate them; the artery is to be found in the intervening space. For the ischiatic artery recognize the supero-posterior spine of the ilium, from thence bring down a vertical line which falls on the anterior and inferior part of the tuberosity of the ischium; the artery corresponds with the middle of this line; it is between the sciatic nerve before and the internal pudic artery behind. The same plan will answer equally for the deligation of the latter vessel.

6. *Venesection.*—Dr. Bellinger,* of Senlis (Oise), states that whatever vein he bleeds in he always makes his puncture parallel with the bend of the arm; after obtaining the quantity of blood required, he removes the ligature, and without touching the orifice, he bends the fore-arm firmly upon the arm; he then places the limb across the parietes of the chest, with the fingers extended so that the thumb rests exactly on the centre of the clavicle of the same side. This easy position has to be maintained only for two minutes, the limb then flexed at an acute angle, is put through the shirt or under the waistcoat. By this method there is not only no return of bleeding, but the wound heals much more rapidly than by the ordinary plan of a compress and bandage. Dr. Bellinger has adopted this method for years, and although we do not believe surgeons in this country will follow his example under ordinary circumstances, still the hint is a good one for urgent cases, where bandages, &c. are not immediately at hand.

7. *Varicocele.*—In our last volume we detailed the different methods resorted to by French surgeons to obtain a radical cure of this disease. Among our extracts in the present volume (art. 58, p. 124) a case will be found in which the treatment adopted was a modification of Sir Astley Cooper's plan of removing a portion of integument. Dr. Watson, the originator of the modification, remarks† that, Sir Astley Cooper's first idea appears to have been simply to modify the shape and size of the scrotum, so as to enable the patient to dispense with the ordinary suspensory bandage. This imperfect object led to the removal of a smaller extent of integument than is in most cases requisite to effect a permanent cure; and also for the arrangement of the line of cicatrization in a course by no means best adapted for exercising permanent pressure along the course of the varicose vessels.

Dr. Watson at the same time remarks that it is highly important that the surgeon should pay attention to the complications of varicocele, and recites instances wherein incautious interference by any mode of operating is calculated to do more harm than good.

Chelius advocates Breschet's method.‡

## § II.—*Injuries and Diseases of the Brain and Nervous System.*

8. *Traumatic Tetanus.*—On this subject Mr. South makes the remark, which we believe will be generally concurred in, that at present our treatment is completely empirical and has entirely failed.§ The following remedy is new to us. A case was successfully treated by making long and deep incisions on either side of the ridge of the spine, from which free bleeding ensued, and afterwards the wounds were freely cicatrized with caustic potash. Mr. South is disposed to think it more likely to prove successful than any other, if it be admitted that the spinal marrow reflects upon the general system the irritation from the local injury.‖

* Gazette des Hôpitaux, Oct. 9, 1846, p. 471. † The Amer. Quar. Jour. Oct. 1845, p. 316. ‡ System of Surgery, par. 1539. § A System of Surg., by J. M. Chelius, p. 382. ‖ Ibid. p. 381.

The following practice is of an entirely different character.

In a case described by Mr. Stapleton, of Trowbridge, attended with opisthotonos, and apparently proeeeding with rapidity to a fatal issue under the use of opiates and anti-spasmodics, a trial was made of the effects of *profound alcoholic intoxication.* This was suggested by the known influence possessed by alcohol over the muscles of voluntary motion and the excito-motory system, and by the conjecture that the alcohol in the blood, independently of its intoxicating effect, might establish a new condition of the nervous centres, incompatible with the continuance of the tetanic spasm.

Being provided with a mixture of alcohol and water, in equal parts, Mr. Stapleton gave at once six ounces, and four ounces more in a quarter of an hour; himself sitting by to note the result. In twenty-five minutes the patient, for the first time since the attack, lay on his side, in a profound and tranquil sleep, without any appearance of apoplectic stertor or symptom of cerebral congestion. Every muscle was in a state of quiet relaxation, and the sense of pain had vanished as if by a charm. The tumultuous action of the heart had ceased; the pulse had sunk to 60, and was fuller in volume; the features had resumed their natural expression, and the whole surface of the body was drenched in a profuse perspiration.

For seventy-two hours the patient was kept under the influence of the remedy, complaining of no pain, without any return of opisthotonos or clonic spasm, the bowels acting kindly and frequently under the use of croton-oil, and the opiates being abandoned.

On the 16th day the alcoholic influence was withdrawn, as a test of his real condition, and from fear of cerebral injury. With a return of consciousness, the tetanic symptoms returned, though in a much less degree and as instantly and perfectly disappeared when the alcohol was again exhibited.

On the evening of the 17th day the back became again arched; the breathing hurried. He was at this time able to answer questions, and to move in his bed; the clonic spasms suddenly supervened, and he expired after their subsidence, without a struggle or a single evidence of pain, apparently from exhaustion.

Mr. Stapleton* thinks that if the alcoholic treatment had been adopted early it might have prevented the accession of the disease, or at least its establishment in the constitution.

## § III.—*Injuries and Diseases of the Mouth and Mucous Passages.*

9. *Œsophagotomy.*—British works of authority do not at present admit stricture of the œsophagus from disease as an indication for the performance of this operation, and even where foreign bodies obstruct the passage Mr. S. Cooper† scarcely allows of its propriety, unless the foreign substance is externally perceptible. Professor Miller and Mr. Fergusson‡ appear to act upon these principles, although cases published by Mr. Arnott and others show that eminent surgeons find it expedient in individual cases to deviate from them. In our last volume (art. 72, p. 120) a case is recorded in which the operation was performed for the extraction of a foreign body, with a fatal result, and we have now two additional cases before us.

In the following, M. Delavacherie, professor of clinical surgery, at Liège, operated with success.§ A man, during a meal, suddenly experienced a

* The Dublin Med. Press, Nov. 26, 1845, p. 344. † Surg. Dict., 7th edit., p. 1024.
‡ Practical Surgery, p. 464. § Journal de Chirurg. Nov. 1845, p. 337.

painful sensation in the region of the œsophagus, which he attributed to something having stuck there. This was soon followed by pain and great difficulty of deglutition. Emetics were employed unsuccessfully. At the termination of six days, and during forty-eight hours subsequent, he threw up at intervals large quantities of blood. A gum-elastic catheter was then passed, and confirmed the diagnosis of a foreign body being in the œsophagus. The catheter sometimes passed into the stomach without resistance, and sometimes met with an obstacle, in striking against which a noise was distinctly heard by the bystanders. Various instruments were employed for the purpose of withdrawing the foreign substance, or propelling it towards the stomach, but unsuccessfully, it was so impacted in the soft parts that violent efforts must have resulted in a rupture of the tube, and from the trials made it was doubtful whether it would be possible by any effort to displace it.

Long-continued sleeplessness, pain, anxiety, deprivation of food, and large losses of blood reduced the patient to a state of extreme debility, and his life was in imminent danger; œsophagotomy was accordingly performed by the method of M. Bégin.

The patient was laid on his back, the shoulders and chest being moderately elevated, and the head turned back and supported on pillows, so that the neck was inclined to the right. The operator placed himself on the left, and made from above downwards an incision through the skin, parallel to the trachea, reaching to about a finger's breadth above the sterno-clavicular articulation, below; and to the level of the superior edge of the thyroid cartilage, above. The muscles and cellular tissue were then successively divided, until the cellular space, between the trachea and œsophagus on the one hand, and the deep vessels and nerves of the neck on the other, were cleared. An assistant placed to the right of the patient during this dissection, drew the trachea and its dependences towards him, while the operator separated the external lip of the division with the ends of the three first fingers of the left hand introduced deep down to protect the vessels and nerves. In dividing the muscular fibres the wound was suddenly inundated with blood from the division of a transverse cervical vein, which had to be tied. The superior fasciculus of the omohyoid muscle had not to be cut. After separating that muscle, the bodies of the vertebræ were reached, but the œsophagus could not be distinguished either by the sight or by the touch. The catheter introduced into the tube did not project into the wound. The patient now swallowed a little water, when bullæ of air and a small quantity of water escaped at the bottom of the wound. The finger being placed over this spot, a hard very acute foreign substance was felt; this was fixed with a forceps to serve as a guide for the opening of the œsophagus, but before doing so, slight traction having been made to ascertain if the forceps held firmly, the foreign body escaped. On examining the neighbouring parts, the common carotid and internal jugular were contained in their sheath intact, but a branch of the superior thyroid artery had been divided. The foreign substance was a large piece of bone. Considerable fever and cough followed the operation, and the wound suppurated and sloughed; emollients and antiphlogistics were employed, and the patient left the hospital on the twenty-sixth day after the operation, perfectly cured.

In another case before us œsophagotomy was employed by Mr. Watson, of the New York Hospital, for the purpose of removing a stricture of the œsophagus.

A man, 24 years old, who had previously enjoyed good health, was affected for a week or two with a cough which left a marked difficulty of deglutition. As he had always had what he termed a narrow swallow, he at first paid

little attention to this difficulty of swallowing, but as it gradually increased to such an extent as to oblige him frequently to leave the table, and to eat with great caution, he consulted a surgeon in Boston, who employed a probang without effect, and prescribed the application of a blister to the neck, and frictions with ioduret of potassium. At the expiration of two months the dysphagia had increased so that solid aliment could not be ingested. A fortnight after this, a surgeon in New York introduced a urethral catheter, and thought he passed it beyond the obstacle, but when Dr. Watson saw the patient it was quite impossible to pass the finest instrument. A gum-elastic catheter, introduced by the mouth, reached the stricture at the distance of seven inches from the superior incisor teeth. The patient took nothing but liquids, was emaciated and debilitated, and regurgitated saliva and mucus, which could not pass into the stomach. The thyroid gland was enlarged and there were some glandular swellings under the lower maxilla. There being no inflammation of the throat, fifteen grains of hydriodate of potassa in solution were ordered daily, with blisters to the neck, and a milk diet. Numerous efforts were made for several days to pass a catheter without success. An instrument, armed with nitrate of silver, was then introduced, which rather increased than diminished the symptoms. Nutritive lavements were also resorted to, but œsophagotomy was ultimately determined on.

Having opened the œsophagus the surgeon found the obstruction seated immediately below his incision, and within reach of the finger. For the purpose of dividing it without danger of wounding the ascending thyroid artery, he thought it necessary to proceed from without inwards, and on this account, and to give himself more room, he cut the sterno-mastoid muscle through, and he drew down the superior edge of the thyroid gland. At this moment the recurrent nerve was brought into view, and one of the branches of the superior thyroid artery, as it entered the gland, was divided. This was the source of the only hemorrhage of consequence which took place during the operation. After much difficulty, and the lapse of considerable time, the division of the contracted part of the œsophagus was effected by an incision at least an inch and a half long, through its whole thickness, the obstacle having been produced, as nearly as could be determined, by a simple induration with contraction, of five or six lines extent. The surface of the œsophagus was smooth and of its usual colour. An œsophageal tube of large dimensions was introduced through the wound, and a glass of wine, and subsequently a quantity of arrow-root, were passed into the stomach.

No unfavorable symptoms followed the operation, the tube remained in the wound till the sixth day, and was then replaced by a catheter passed through the left nostril. The wound contracted, the opening into the œsophagus was so far closed as scarcely to admit the passage of a fine stilet, the patient began to walk about, but without any particular symptoms of a bad character he did not recover his embonpoint, he remained feeble, and his pulse at a hundred.

Subsequently he was attacked with dyspnœa. The catheter having been withdrawn, on attempting to replace it, violent suffocation took place, so that it became necessary to give up the attempt. On a second trial it penetrated without difficulty beyond the larynx, but it was arrested below, and it became necessary to break the still delicate cicatrix of the œsophageal wound with the end of a stilet, and to introduce there a gum-elastic tube, through which nourishment could be conveyed to the stomach. Supported in this manner he gained strength, walked about, and went into the open air.

Two months after the operation, having ridden out on horseback, a return of dyspnœa took place, which increased to great intensity, with pain and swelling

of the parts, and on the same evening there was imminent suffocation. This was relieved, but appeared again a few weeks afterwards with such violence that tracheotomy was decided upon. This operation procured only temporary relief, colliquative diarrhœa set in, and the patient died.

On post-mortem examination the right lung was found slightly hepatized, with a recent false membrane in the right pleura, and some points containing pus in the left lung. The pharynx, at the superior extremity of the œsophagus was considerably ulcerated, the surface of the ulceration being irregular and of a greenish colour, its borders ragged and unequal. It was in a manner framed in a purulent depôt of a yellowish colour, formed of distinct tubercles of variable volume. Its seat was evidently the submucous cellular tissue. The œsophagus communicated at this point with the trachea by two openings, resembling longitudinal irregular fissures about three or four lines long; one seated immediately below the inferior border of the cricoid cartilage, the other about two inches lower down. The arytenoid cartilages were strongly pressed against each other, so as to contract the opening of the larynx; the glottis was contracted and irregular, less in consequence of œdema of the submucous cellular tissue, than by the contraction and turning forward of the posterior and superior part of the larynx. The mucous membrane of the trachea round the perforations was greatly inflamed and of a greenish-black colour. The œsophagus above the incision was ulcerated and unequal, the ulcerated portion presenting many fistulous passages, which penetrated into the neighbouring parts and between the muscles. The cellular tissue of the cervical region was evidently indurated in consequence of inflammation.

## § IV.—*Injuries and Diseases of the Abdomen and its Contents.*

10. *Hernia.*—Mr. Teale's recent work* will form an excellent standard text-book on this subject, although it does not profess to contain anything new. After describing the sac, Mr. Teale remarks that abundant deposits of indurated fat sometimes occur in the subserous tissue which have frequently been mistaken for omentum during the operation. This error may be avoided by observing that the fatty substance in question is not immediately surrounded with any structure resembling serous membrane, but is closely connected on all sides to the surrounding parts by filamentous tissue. By carefully separating these packets of fat, which in most instances are irregularly distributed, intervening portions of the sac itself may generally be exposed.

Our extracts contain a suggestion for a modified mode of employing the taxis by more completely relaxing the parts, &c. (art. 44.) Mr. Teale's remarks on the taxis are as follows:—The object in relaxing the muscles is not to diminish the intensity of the stricture, but to relieve the state of tension in which the walls of the abdomen may be; for in most instances the boundaries of the constricting aperture are formed by aponeurotic and by serous structures, and, consequently, this aperture is incapable of being altered in size by a relaxed or contracted state of the muscles. In this respect, however, the practitioner rather loses than gains advantage in relaxing the abdominal muscles, for it is much easier to push a substance through an opening of a given size in a tense than in a relaxed membrane. M. Lisfranc recommends that the walls of the abdomen should be placed in a state of moderate tension, which, he says, facilitates reduction. Mr. Teale has, on several occasions, succeeded in reducing herniæ by placing the aponeurosis in a state of tension after failing in his attempts whilst the muscles were relaxed. But as a general rule, it is better, in the first instance, to secure the advantages

* Practical Treatise on Abdominal Hernia, 1846.

resulting from relaxation of the muscles, and afterwards, our attempts having failed, the taxis may be repeated whilst the parts are moderately tense.

On the subject of the diagnosis between hernia and hydrocele, Mr. Teale remarks that it should be borne in mind that transparency is not an unequivocal sign of the latter. A boy was brought to the Leeds Infirmary with a tumour of the scrotum, of large size, tense, and elastic; the integuments being very thin, from the distension which it occasioned. On examination, by the aid of a candle, it was found to be as translucent as any hydrocele. Whilst examining it, Mr. Teale observed that there were two opaque lines intersecting the tumour diagonally; which, by pressure, were, to a certain extent, made to alter their situation. This circumstance, together with the comparative lightness of the tumour, and a slightly tympanitic condition excited suspicion as to the disease being a hydrocele, and justified its being treated as a hernia. The use of the taxis showed that the diagnosis was correct, and that the tumour was a hernia, greatly distended with flatus; for, by pressure, the distended bowel was, with some little difficulty, replaced within the abdomen. The opaque lines indicated, most probably, the point of contact of distinct folds of intestine.

Mr. Teale gives a full account of M. Gerdy's operation for obliterating the hernial aperture by the cutaneous plug, with modifications of this operation adopted by Mr. Bransby Cooper and M. Signorini. Mr. Christopher has proposed another modification, which we give in our Extracts (art. 55). Although Mr. Teale speaks favorably of M. Gerdy's method, as capable, in many instances, of producing a radical cure, he remarks that this effect does not result from the barrier caused by the cutaneous plug being permanent. The resistance afforded by the invaginated portion of skin is only temporary, for M. Gerdy has ascertained that after some time it becomes atrophied. Nevertheless it constitutes a barrier, aided probably by plastic effusion, for a sufficient length of time to allow the hernial aperture in some cases to contract so completely as to prevent the future descent of the hernia; and in others to such a degree that the hernia can be readily retained by a truss.

Our last volume contains some remarks on the reduction of herniæ without opening the sac. (p. 246.) It appears that Mr. Teale is favorable to this practice. He states that there are important advantages belonging to the operation, but that some deduction must be made from their value in consequence of the risk to which the patient is exposed, from the return of intestine or omentum in a state of actual or threatened gangrene, and from the reduction of the hernia whilst strictured by the sac; which risks, however, may, by proper precautions, be greatly diminished, if not entirely avoided. His experience certainly justifies him in recommending this mode of operating whenever it is practicable, provided the necessary precautions are taken against incurring the evils to which the operation, when carelessly performed, might be exposed; and, in order to avoid these dangers, it is important to be able in the first place to recognize the symptoms which indicate the occurrence of gangrene, or of a state verging towards it; and, secondly, to guard against employing an improper degree of force for the purpose of replacing the hernia after the stricture has been divided. The operation, without opening the sac, ought to be performed in all cases in which it is practicable, unless the local or general symptoms indicate the existence of gangrene or an advanced stage of inflammation. In accordance with this opinion it may be stated, as a general rule, that the operation should be attempted,—1st, in most cases of large herniæ; 2d, in many herniæ of middle size; and 3d, in but few small herniæ, unless in the earliest stage of strangulation.

Space will not allow us to enter more fully into the practical points em-

braced in this work, but we shall doubtless find it necessary to refer to Mr. Teale as an authority when new observations come under review in compiling our future reports.

11. *Belladonna in Strangulated Hernia.*—Dr. de Borsa states that before he was accustomed to apply belladonna, he resorted to the operation for strangulated hernia much more frequently than he does now. Both in hospital and private practice, a long series of cases may be enumerated, in which the reduction of hernia by taxis, aided by this medicament, has been accomplished. Dr. de Borsa does not say that it relaxes the tendon of the external oblique and the internal ring of the inguinal canal, as it expands the pupil, but confines himself to the indisputable fact, that since he has employed belladonna he much oftener succeeds in reducing the hernia without having recourse to the knife. He anoints the tumour at least every half-hour, after a while the pain and then the tension of the sac diminish, and the possibility of reducing the hernia by the taxis occurs. The various other means usually employed, as bleeding, baths, cold, tobacco, &c., are not to be neglected; and although these will frequently not succeed alone, they will do so in many cases when aided by the belladonna.*

## § V.—*Injuries and Diseases of the Urino-Genital System.*

12. *Vesical Calculi.*—Mr. T. F. Brownbill, surgeon to the Salford workhouse, records a case in which a calculus, two inches and a quarter in length, weighing four drachms and forty-four grains, was voided without manual interference from the female urethra. Its nucleus was a common hair-pin, and its probable composition the triple phosphate with phosphate of lime. From the evidence of three persons it appeared that the pin was swallowed a little more than two years previous to the passage of the calculus. During the interval, she suffered in the first place with slight pain in the bowels and constipation, afterwards with continued acute pain in the left inguinal region, incontinence and increased flow of urine, a profuse purulent discharge from the urethra, scalding and obstinate constipation, and frequent discharges of blood with the fæces. Subsequently she frequently parted with as much as seven quarts of urine in twenty-four hours, which contained no saccharine matter. There was pricking pain in the left groin, increased on bending the body forwards and on sitting, but she was never perfectly free except in a recumbent position. The passage of the calculus took place during the last month of pregnancy, and Mr. Brownbill considers it most probable that the pin passed from the sigmoid flexure of the colon into the left side of the bladder.†

13. *Lithotomy and Lithectasy.*—Our extracts contain an important article on this subject, or rather an account of a modified plan of "Lithectasy." In the original operation, to which the latter term was applied, an opening was to be made in the membranous portion of the urethra, and twenty-four hours were to be occupied in the mechanical dilatation of the opening before any attempt to extract the stone. The objections to this were many and manifest. Dr. B. de Borsa's plan is to open the whole membranous portion of the urethra, to dilate the opening with the finger, and at once remove the stone with the forceps. (Vide art. 54, p. 118.)

14. *Lithotrity and Lithotripsy.*—The following is a condensed statement of Sir Philip Crampton's views on this interesting subject.‡

Sir Philip remarks in the first place on the differences of opinion which

* Med. Chirurg. Rev. April, 1846. † The Prov. Med. and Surg. Jour. Nov. 12, 1845. ‡ The Dublin Quarterly Journ. Feb. 1846, p. 1.

exist in the profession;—the lithotritists maintaining that the new operation is applicable to almost every case of stone, is unattended with much pain, and *when properly performed* is quite devoid of danger; the hospital surgeons denying all this, and asserting that lithotrity is applicable to a very limited number of cases, and that it is to the full as painful and far more fatal than cystotomy.

After showing, by a reference to "unquestionable facts," that much of the prejudice entertained against lithotrity in this country is founded on the exaggerations of professed lithotritists, Sir Philip does not hesitate to say he is in a condition to prove that Baron Heurteloup's representation, that the operation is "almost entirely free from danger, and little or not at all painful," is not too favorable a picture, provided it *be properly performed, and restricted to those cases which come within its legitimate domain;* but if applied generally to lithotrity, *as a substitute for cystotomy*, it is lamentably untrue.

As a complete verification of Baron Heurteloup's statement, if limited to a certain description of cases, Sir Philip informs the profession that he operated upon Mr. Henry Kemmis in March, 1839, relieving him of a stone by three operations, and Sir Philip quotes as follows from a letter subsequently addressed to him by that gentleman:—"I think the operation is more distressing from the position in which the patient is placed, than from any great pain, but neither after nor between the three operations was I prevented from attending to my usual occupations of business, nor was I ever confined to the sofa on the days in which they were performed. My appetite and spirits were perfectly good." Sir Philip then proceeds to give the result of his personal experience in lithotomy and lithotrity, which extends over a period of upwards of forty years, during which time he has seen the operation performed, both in these countries and in France, by the most celebrated surgeons who have lived during the last half century, and has himself operated on sixty-eight individuals; on forty-nine by lithotomy; on nineteen by lithotrity, and on two of these by a combined operation consisting of lithotrity and cystotomy (lithectasy); that is, by opening the urethra at its membranous part, dilating but not dividing the neck of the bladder, and extracting the fragments of the calculus which had previously been crushed by the lithotrite.

Acknowledging that to Civiale the title of *inventor of lithotrity* is justly due, Sir P. Crampton describes the introduction of the invention into Dublin. Four individuals affected with stone in the bladder proceeded from Dublin to Paris or London, and returned to the former place cured. Sir Philip was determined to know something more of lithotrity; he went to London and witnessed the operation performed by Baron Heurteloup, with Civiale's three-branch instrument; he supplied himself with the instrument, and after making some trials on the dead subject, satisfied himself that even in the most dexterous hands it was likely to prove as dangerous as it was difficult, and determined therefore never to attempt it. The invention however of the two-branch *percuteur* changed the whole character of the operation, and with it changed Sir Philip's resolution, who immediately procured one, and proceeded to the study of it.

The merit of the invention of lithotripsy, that is to say, the seizing of the stone with a two-branch curved instrument and crushing it, instead of a three-branch straight one and boring it, belongs to Heurteloup; an instrument in all material points identical with the Baron's having been also invented by Mr. Weiss as early as the year 1824. It is the *percuteur courbè à marteau;* beyond all comparison the best instrument that has as yet been invented for pulverising calculi in the bladder, whether the effect be produced by percussion when the branches are closed on the stone by the blows of the

hammer, or by compression as when they are closed by the action of a screw. The best proof of the superiority of the *percuteur* to the three-branch instrument is the fact that it is the instrument now exclusively employed by Civiale, and by every lithotritist in Europe and America.

In order to qualify himself for the performance of the operation, Sir Philip began by preparing a subject in such a way that he could look into the bladder, while he was manipulating with the instrument; this was done by removing the anterior wall of the abdomen, cutting away the upper fundus of the bladder, and keeping the opening distended by stitching the cut edges to a ring of strong wire about three and a half inches in diameter. By practising on a subject so prepared, or even on a well-stuffed cushion, on the centre of which the calculus may be laid, a knack will soon be discovered, which very few lithotritists have yet made public, by which, with the eyes closed, the calculus may be caught with certainty at the very first attempt. In his lecture, Sir Philip here laid a calculus on a linen cloth about six inches square, drawn tight at the four corners by his assistants, he pressed the curved extremity of the *percuteur* gently downwards on the cloth, so as to form a double inclined plane, or funnel-shaped depression, down one side of which the calculus immediately rolled, and dropped into the jaws of the instrument, which were open to receive it. In endeavouring to seize fragments or portions of the stone, this manœuvre is facilitated by gently shaking the instrument. After a few days' practice in this way, Sir Philip performed the operation for the first time in Ireland, at the Medical Hospital, Dublin.

The problem which lithotrity has to solve is as follows:

1. The reducing of calculi within the bladder into fragments sufficiently small to be discharged or removed through the natural passage.

2. The effecting this by such means as shall excite no dangerous irritation in the urinary organs.

3. The freeing the bladder or urethra from the fragments which these organs may not have the power to expel.

To effect these objects, it is necessary that the instrument should combine a degree of strength sufficient to overcome the cohesion of the particles of the calculus, with a form and dimensions which will admit of its being passed through the urethra without exciting any considerable irritation. All instruments are rendered obsolete by Baron Heurteloup's or Weiss's curved *percuteur*.

The *percuteur* has undergone several alterations and some improvements, the most important improvement is the provision for preventing the accumulation of detritus between the jaws of the instrument, made by the late ingenious Mr. Oldham. The invention has been claimed by many, but Sir Philip presented the original instrument made by the above-mentioned gentleman in 1834.

The preparation of the patient is general and special.

The general consists in light diet, abstinence from fermented liquors, free bowels without purging, the use of the hip-bath; if the urine be acid, administering alkalies combined with uva ursi, or Peruvian bark, and Vichy water; mineral acids when the urine is alkaline, and the infusion of Pareira brava, when there is mucous deposit; also absolute rest, with occasionally anodyne enemata.

The special preparation may be summed up under the heads of gradual dilatation of the urethra when necessary; division of its orifice, when preternaturally contracted; and the frequent introduction of the catheter. On this latter Sir Philip lays the greatest stress, as, if properly conducted, it allays the irritability of the urethra and the bladder.

In calculating the probable *result* of the operation, there is a far more important element to be taken into account than the skill of the operator or the excellence of his instruments, namely, the proper adaptation of the operation to the case. If from a too exclusive admiration of lithotrity, founded on the exaggerated representations of some of its advocates, uncorrected by an extended experience, lithotrity be applied to a case to which it is inapplicable, and that properly comes within the province of cystotomy, the certainty is that the operation will fail, and the probability is that it will prove fatal; and to a certain extent, but not to so great an extent, the converse is true. If, for instance, cystotomy be performed on a person labouring under phthisis, or extensive disease of the liver or kidneys, it will certainly prove fatal. Such cases are not likely to succeed when treated by lithotrity; still they *may* succeed, and if the stone be small and the bladder tolerably sound, the probability is that they will succeed; and life may not only be prolonged, but, what is scarcely less desirable, that which remains of it may be spent in comparative freedom from pain. Again, if perineal cystotomy be attempted in a case where the size of the stone is so great that it either cannot be extracted through the lower opening of the pelvis at all, or without employing such violence as to render the operation almost certainly fatal, then lithotrity affords a means of relief, whether applied alone or in aid of cystotomy or lithectasy.

It appears, then, that cystotomy and lithotrity are not to be considered as rivals, and that the question as to which of the operations should be the rule and which the exception should never be brought into discussion; each operation has its special province, the boundaries of which (if, indeed, they admit of being fixed at all) can be determined only by a comparison of a vast collection of facts, carefully noted, and, above all, faithfully reported and properly authenticated. Professor Miller takes a similar view of the subject. He remarks that the one operation does not and cannot supersede the other,* and this view is now participated in by many of the most judicious practitioners.

M. Velpeau, the most able, eloquent, and determined opponent of lithotrity, admits that, in cases of small stones, and even of large ones, if they be friable, and the bladder and its appendages be healthy, lithotrity is the preferable operation; but in all cases of children under 15 years of age, and even in adults, where the stone exceeds in volume a small nut, and is of excessive hardness, and when the urinary organs are in a state of disease, as evinced by catarrh of the bladder, contracted or irritable bladder, then he would prefer lithotomy. Amussat, Lisfranc, Dubois, and Leroy, on the contrary, are vehement supporters of lithotrity; they would apply it to almost every case admitting of any operation, even to children and infants. M. Civiale, however, though sufficiently partial to what may fairly be called *his own* operation, is far from applying it indiscriminately.

As illustrative of the state of opinion in England, Sir Philip gives the views of Sir Benjamin Brodie, Mr. Liston, Dr. Willis, and others, which exhibit a "terrible picture;" nevertheless, if applied to lithotrity, considered and *employed* as a *substitute* for lithotomy, it is not too highly coloured. Dr. Willis's account, the most unfavorable, is drawn from documents which have reference chiefly, if not altogether, to the original operation with the three-branch instrument; but even as applied to this operation, his picture is, in fact, too highly coloured, but if applied to the operation as *now* performed with Baron Heurteloup's *percuteur*, it is far from being a correct representation of lithotrity, and this Sir Philip is in a condition to prove, upon the evidence of all the

* Principles of Surgery, p. 446.

cases of stone in the bladder on which he has been consulted during the last eleven years, of which cases the following is a

*Summary.*—Thirty-five cases of stone in the bladder applied to Sir Philip for relief between the months of March, 1834, and November, 1845, which were disposed of in the following way.

Two were set aside as unfit for any operation; both had diseased bladder and kidneys.

Twenty were operated on by lithotrity, and nine by cystotomy. Four were sent to Baron Heurteloup, and were cured by lithotrity. (See the Baron's treatise on lithotrity, in which those cases are detailed.) Of those operated on by lithotrity, all were adults.

Of those operated on by cystotomy, three were under 12 years of age, two boys and a girl. Six were adults, and males. All that were operated on by lithotrity were cured, with the exception of one, and in his case the operation cannot be said to have failed, because it was performed for the express purpose of bringing the stone into a condition to be removed by lithotomy, and this the operation fully effected; the man lived three months after the last operation by lithotrity, and died of rupture of the stomach, caused by an excess in drinking. In one case the operation (as far as it went) was perfectly successful; the cure was not completed from causes that had no reference to the operation.

All that were operated on by cystotomy recovered. One, it is true, died some months afterwards of inflammation of the kidney and testicle, but the wound had nearly healed. It is right to observe, that six months previous to the operation the subject of it had suffered a similar attack of inflammation of the kidney, attended with suppuration, which reduced him to such a degree that no expeetations were entertained of his recovery. It appears, then, that of the thirty-three patients operated upon, nine only were submitted to cystotomy (about one fourth); it is not, however, to be inferred from this statement, that out of any given number of cases of calculus only one fourth should be operated on by cystotomy; such a conclusion would be manifestly erroneous, for if ten or twelve of the twenty-four operated on by lithotrity, instead of being adults, were children and old persons, the proportions might probably be reversed, and the cases suitable to lithotrity might be reduced to ten or twelve, and the difference placed to the credit of cystotomy; and this affords a striking illustration of the utter uselessness (not to say absolute mischief) of drawing any inference favorable or unfavorable to lithotrity from a statement (however accurate) of the mere *numbers* operated on, without reference to the *circumstances* of each particular case. The numbers are very far from being sufficient to justify any general conclusion being drawn as to the respective values of the old and new operations, but they are sufficient to establish some points of great practical importance, upon which surgical opinion is still much divided.

1st. It is abundantly proved that lithotrity may be successfully applied to cases which are considered to be beyond the domain of cystotomy. The most intrepid cystotomist would have hesitated (if he did not at once refuse) to operate by cystotomy in four of the cases, for it is nearly certain that in these cases the operation would have proved fatal.

2dly. It has been proved that, in certain cases, to which neither cystotomy nor lithotrity are applicable singly, the combination of the two operations (and especially the combination of lithotrity with lithectasy) may be employed with success.

Finally, it is proved that when the urinary organs are in a healthy state, stones of great hardness, and upwards of an inch and a half in diameter, may

be removed by lithotrity with safety. It by no means follows, however, that in such cases, lithotrity is *always* to be preferred to cystotomy; the choice of the operation must often be determined by various considerations (not purely surgical) connected with each particular case, and having reference to the operator as well as to the patient.

The important question still remains to be determined, what are the circumstances of the case which forbid lithotrity? Here Sir Philip is obliged to trust partly to conjecture, founded on the principles of general pathology, and partly to the experience of others. In this difficulty he finds great assistance from the consummate knowledge, founded on a vast experience, of M. Civiale. It may be stated, as a general fact, that in calculous patients the bladder is not infrequently found in one of two opposite states, which, if they do not absolutely forbid lithotrity, render its application in the highest degree dangerous, and (as a remedial means) far inferior to cystotomy. The bladder, like the stomach and the heart, has not inaptly been termed a "hollow muscle," which is constantly receiving and transmitting a fluid; like the heart, it is liable to hypertrophy, or thickening of its walls, diminution of its capacity, and increased irritability or power of contraction; like the heart, too, it is subject to a thinning of its walls, an increase of its capacity, and a diminution of its contractile power: these opposite conditions are easily recognized, and are familiar to every surgeon of experience; but to M. Civiale is due the merit of having shown the influence which these states of the bladder exercise on the success of lithotrity. In the hypertrophied bladder the patient is harassed by the almost incessant desire to pass water; the quantity discharged seldom exceeds an ounce or an ounce and a half; the pain, especially in expelling the last drops, is excessive, the urine is always high-coloured, and deposits, in cooling, a mucous sediment, frequently tinged with blood. In such a case the mere operation of sounding, or even of injecting warm water into the bladder, may excite a severe or even fatal inflammation of the organ. Sir Philip has a knowledge of two cases, in which the injection of tepid water into the bladder (though done with the utmost care) proved fatal in three days, by exciting acute inflammation of that organ; on examination after death, the mucous membrane was found inflamed, thickened, and corrugated. In such a state of the bladder, it is scarcely necessary to say that lithotrity is not to be thought of.

The opposite state, in which there is atrophy or wasting of the walls of the viscus, with increase of its capacity, (M. Civiale justly observes,) exercises a great influence on the sensations, which are caused by a calculus, as well as upon the manœuvre of the operation, and on its result; it masks all the symptoms of stone, or renders them different from those we are accustomed to observe. As the bladder never empties itself completely, its walls scarcely come in contact with the stone; the consequence is that the pain and the peculiar sensation in expelling the last portion of the urine (the most certain of the *rational* symptoms of stone) are wanting. Exercise does not cause those bleedings from the bladder, and those painful spasms, of which calculous patients, under other circumstances, complain so much; the urine is loaded, fetid, and also alkaline, the debility increases daily, the pulse is quick and weak, and there are frequent chills, followed by heat flushes; the bladder is in a state of low inflammation, with diminished vital powers, and the kidneys generally participate in the disease. In such a state of things, M. Civiale justly considers that the operation of lithotrity would almost certainly prove fatal; but Sir Philip believes the same might be said with equal truth of cystotomy. M. Civiale thinks it of so much importance, with reference to lithotrity, that this condition of the bladder should be clearly understood, that, in addition to the signs above mentioned, he gives several others that are deserving of the

utmost attention. This morbid thinning and atony of the walls of the bladder must not be confounded with paralysis or want of action from defect of innervation. This last state furnishes no objection to the application of lithotrity, provided sufficient means be employed to rid the bladder of the fragments of the broken calculus.

In addition to the morbid states of the bladder, so well described by M. Civiale, Sir Philip would say that a contracted and irritable urethra, an enlarged and irritable prostate gland, and, above all, a constitution prone to sympathize with a disordered state of the urinary organs in general, and with the urethra in particular, a large and very hard stone, or numerous small ones, forbid the application of lithotrity, and bring the case within the proper domain of cystotomy.

Lithotrity is in general considered as inapplicable to children under 15 or 16 years of age, on account of the narrowness of the urethra in early life, and the comparative safety of cystotomy in young subjects; but considering that in children the urethra is (except at its external orifice) highly dilatable, and that the most violent symptoms of calculus in the bladder are often created by the presence of a stone so small that it might with the greatest facility be crushed, and the fragments extracted, at a single operation, Sir Philip cannot but hope that, at no distant period, the operation of cystotomy will be superseded by lithotrity in a great proportion of cases of calculus in children.

Sir Philip does not attempt to institute any comparison or "*parallèle*" between lithotrity and cystotomy. He thinks it better, in the present state of our knowledge, to consider lithotrity and cystotomy not merely as different means directed to the same end, but as different operations applicable to different forms or states of calculous disease; an extended experience will every day tend to determine more and more clearly what those forms or states of disease are, to which each of the operations is respectively applicable. Sir Philip concludes by saying, that if lithotrity is to be considered as "a fatal gift to humanity," it must in this respect be placed in the same category with bloodletting, mercury, and opium—fatal gifts, indeed, in the hands of ignorance and rashness, but blessings and means of life in the hands of experience and discretion.

15. *Vesico-Vaginal Fistula.*—Dr. Lever* describes a case in which difficulty was experienced in detecting the fistulous opening. He remarks, that when this happens, the examination with the speculum should be conducted with the patient placed on her knees and elbows; the bivalve instrument should be selected; when separated, the blades should be placed laterally, and if the patient be placed near a window a good light will be thrown on the roof of the vagina, which is placed inferiorly, and may be examined throughout its whole course.

In the treatment of this infirmity, Dr. Lever keeps a catheter in the bladder, with a bandage, its size being sufficiently large to prevent the urine passing by its side, but not so large as to distend the urethra. At the same time the nitrate of silver is passed along the sinus by means of silver probes, *coated at their bulbous extremities with lunar caustic*, to the extent of about an inch and a quarter.

## § VI.—*Injuries and Diseases of Joints.*

Sir Benjamin Brodie has delivered a course of lectures on diseases of the knee-joint, and we proceed to give a condensed statement of his opinions and practice in a branch of surgery to which he has paid the greatest attention,

* The London Med. Gaz. Nov. 1845, p. 1316.

and in which he has had perhaps more experience than any man in Europe. The lectures are the more important at this moment, because Sir B. Brodie's views—physiological and pathological—are totally at variance with those of the most recent French writers. Bonnet* and Richet†, for instance, deny the vascularity of cartilage, and maintain that the terms inflammation and ulceration of this structure should be rejected, and replaced by the words "*softening*," "*erosion*," &c. Chelius admits their vascularity, and treats of them as the primary seat of inflammation and ulceration;‡ and in this country the physiological point is believed to have been demonstrated by the microscopical observations of Mr. Liston.§ The following doctrines will be received as from the highest authority on the pathological question.

16. *Inflammation of the Synovial Membrane of the Knee-joint.*‖—When slight, the membrane is a little more vascular than natural, and the joint contains an increased quantity of fluid. It cannot exactly be said that there is an increased quantity of synovia, for the fluid in most cases rather resembles serum, and is more or less turbid. In other cases the vascularity is very much increased, and the membrane may be as much discoloured as the tunica conjunctiva under violent ophthalmia, its inner surface being at the same time, to a greater or less extent, incrusted with coagulable lymph.

When the disease has been of long duration, a change takes place in the condition of the synovial membrane, quite different from what is ever observed in the serous membranes. It becomes thickened; of a soft, pulpy consistence; the inner surface is no longer smooth and uniform, but processes of soft vascular substance project from it, in the manner of fringes, into the cavity of the joint. In the commencement the morbid changes are confined to the membrane; in a more advanced stage these changes extend to other textures. That portion of the membrane which covers the cartilages, though it resists the disease in the first instance, becomes affected afterwards. The cartilages themselves adhere less closely to the bone than ordinary, and by and by they begin to ulcerate; generally on the patella in the first instance, on the femur and tibia afterwards.

Sir Benjamin calls the process *ulceration:* it seems to correspond, in all essential circumstances, with ulceration of the soft parts. It is consequent on inflammation; and although it may proceed to a considerable extent without suppuration, it is followed by suppuration ultimately. Many facts, not only in the history of the diseases of the joints, but of other diseases also, justify the opinion that the secretion of pus, although a usual, is not the necessary concomitant of ulceration. It has been said that cartilage is incapable of ulceration, and that its absorption is accomplished only through the agency of those fringes of synovial membrane lying in contact with its surface. There are sufficient reasons for the opinion that this view of the subject is not well founded, and that there is no essential difference between the process of ulceration in cartilage and in other textures. The fluid in the cavity of the joint in slight cases is very little turbid; in severer cases it is very much so, with flakes of coagulated lymph floating in it; and under certain circumstances, the membrane will secrete pus, as serous membranes sometimes secrete pus, but under ordinary circumstances merely serum. The cavity of the knee-joint is then converted into one large abscess, bounded in some parts by inflamed synovial membrane, and in others by the bones of the joints; for the cartilages, whenever they come in contact with the purulent secretion, are absorbed.

When the inflammation has subsided, sometimes the membrane is left thick-

* Traité des Maladies des Articulations, 1845. † Recherches pour servir à l'Histoire des Tumours Blanches, 1845. ‡ System of Surgery, p. 216.
§ Medico-Chirurg. Trans. vol. v, p. 92. ‖ The London Med. Gaz. Feb. 6, 1845.

ened, and of a gristly texture, even where the cartilages and bones have altogether escaped. In other cases, the cartilages being absorbed, the cavity of the joint is filled up by the thickened synovial membrane and coagulable lymph. Anchylosis, by soft substance in the first instance, and by bony substance ultimately, is the consequence. Complete anchylosis does not occur except the cartilages have been completely absorbed. Where the cartilages have been only partially absorbed a healing process is established. A kind of membrane is formed upon the surface of the bone in the place of the cartilage, and the joint retains its complete mobility.

Sir Benjamin Brodie then refers to the causes, and distinguishes the acute and the chronic inflammation of the synovial membrane, describing the symptoms, particularly those which indicate the supervention of ulceration of the cartilages.

The patient very generally lies with the leg bent upon the thigh. It is better that it should not be placed in that position at first; but the patient very often gets it there before you are aware of it, and it is very difficult, when it is once in the bent position, to make it straight again. The synovial membrane and the ligament in this position are all distended, and must be all stretched; and when the cartilages are ulcerated, very often the internal ligaments, at one or other of their extremities, become separated from the bone. The flexor muscles are constantly pulling at the head of the tibia, and by little and little they draw it backward, until at last it is removed from its proper place, being lodged in the ham. There is dislocation, sometimes complete, but more frequently incomplete, which may take place without suppuration, and many persons recover with this kind of dislocation of the knee, in whom abscess never showed itself.

In all cases of diseases of a joint, the first and most important thing is to keep it in a state of perfect quietude. When the pain on motion is insufficient to produce this effect, recourse must be had to some special means for doing so. Diachylon plaster or starch bandages may be employed, but there are objections to both. The patient cannot very easily remove them himself. The best contrivance for keeping the joint quiet is splints, made of thick and stiff leather, macerated in warm water, and allowed to dry on the part. They should be pretty broad; one applied to each side of the joint, nicely adjusted and kept on with a bandage. When dry they become as hard as a board, but are easy to be worn, because they exactly fit. If the joint should swell, or the splints be uncomfortable, the patient can easily readjust them for himself, making that degree of pressure which is agreeable to his own feelings.

In a more advanced stage, where the cure is nearly completed, and the object is to limit the motion of the joint, lest there should be a recurrence of the inflammation, a bandage, made by Schoolbred, in Jermyn street, may be applied with advantage. It is composed of spiral wire, inclosed between two pieces of leather, with a stiff piece of leather of moderate thickness behind, and laced on one side. The leather behind makes a very excellent splint, and the bandage being elastic, if the knee should swell a little it does not matter; besides which the patient may draw the lace as tight or loose as he pleases. In many cases, after inflammation has subsided, it is advisable to employ one of these bandages. At the same time the heel of the shoe should be a little raised, so as to keep the knee slightly bent, this being much more convenient to the patient than an absolutely straight position.

After mentioning bleeding and cupping, the application of leeches and blisters, and purging and diaphoretic medicines, Sir Benjamin Brodie alludes especially to what may be called specific remedies—mercury and colchicum.

In a gouty habit, fifteen minims of vinum colchici may be given two or three times a day, but that dose should never be exceeded, for large doses of colchicum are dangerous, and small ones accomplish all that is required. The effects are sometimes marvellous, giving complete relief from extreme agony in a few hours. But the use of colchicum should not be ventured on without previously administering purgatives, and they should also be given occasionally while it is being used. Small doses of mercury also may be given at the same time. The tendency of colchicum is to produce white evacuations, and the combination of mercury with the purgatives, at the same time that you exhibit the colchicum, prevents the injurious effect that might otherwise arise from derangement of the biliary secretion. Mercury may be administered with advantage to produce its specific effects on the system. The combination of calomel with opium is a very convenient way of giving it in rheumatic inflammation. The mercurial treatment is still more useful in a later period of the disease, accomplishing that which can scarcely be accomplished by any other means.

In chronic inflammation of the synovial membrane the remedies are the same, but less active measures are required. Iodide of potassium, in small doses, combined with alkaline remedies, may be productive of benefit, and in slighter cases of the disease liniments may be usefully employed, or the limb may be painted with a solution of a drachm of iodine in an ounce of alcohol. The following makes an excellent liniment: Take an ounce and a half of olive-oil and a drachm of sulphuric acid; when these are well mixed together add half an ounce of oil of turpentine. This makes a black liniment, which may be rubbed on with a bit of lint twice daily, until the skin becomes inflamed and tender; it will produce a good deal of inflammation of the skin, but not a blister.

When the altered character of the pain, attended with starting of the limb at night, indicate that ulceration is going on in the cartilages, the only remedy is mercury, and the effect is remarkable. The gums should be made sore, and the patient who was suffering tortures will, in a few days, be quite relieved. If administered sufficiently early it will save the mobility of the joint, if at a later period it will save the limb, but will not prevent anchylosis. Calomel and opium should be administered two or three times a day till the gums are sore, mere alterative doses being insufficient. It is, however, seldom necessary to continue the exhibition of mercury for any very lengthened period. Sir Benjamin Brodie states that one of the greatest improvements of modern surgery is the exhibition of mercury in the ulceration of the articular cartilages; he does not know any other remedy which will answer the same purpose.

After inflammation of the synovial membrane, the joint either—1, retains its natural mobility; or, 2, is more or less stiff; or, 3, completely anchylosed. In the second case Sir Benjamin Brodie is afraid of interference, because if much liberty be taken by friction or shampooing, a return of the inflammation is not improbable, and if the patient exercises the joint in the ordinary manner, its natural mobility is for the most part regained. At a late period, if this should not be the case, friction with shampooing, combined with the vapour-bath, may be employed.* If the joint is left not only stiff but in a half-bent state, it should be brought to a natural position, for the purpose of preventing anchylosis; or if this should happen it should still be done, because anchylosis with the leg nearly straight is a comparatively trifling inconvenience. The apparatus for this purpose consists of a splint fitted to the back part of the thigh, and another to the back of the leg, with a hinge between them in the ham, and a screw behind, by which the splints may be gradually separated from each other. The splints are made of metal,

* Lib. cit. March 6, p. 397.

secured by straps passing round the thigh and leg, and over the patella. The instrument admits of very gradual extension; when the limb has been much bent it may take six or twelve months to make it perfectly straight; in other cases this may be accomplished in a few weeks.

Chronic inflammation of the knee-joint may exist for a very long time, and at last end, not only in ulceration, but in suppuration. An abscess may present itself in one place and then in another; these may form circuitous sinuses, and thus heal with difficulty; the health suffers, and at last amputation of the limb is necessary, as being a smaller evil than the loss of life.

17. *Abscess of the Knee-joint.*—There is an attack of violent inflammation, which goes on at once to suppuration. When called to the patient he is found suffering a great deal of pain; the joint swollen and full of fluid; the pulse very frequent, and perhaps there are rigors. Leeches and blisters are applied, but there is no absorption of fluid, as under ordinary circumstances, and no relief of the symptoms. On making a puncture with a grooved needle, there is an escape, not of serum, but of matter, of which, indeed, the joint is full. Inflammation of serous membranes sometimes terminates in an effusion of pus. Thus pleuritic inflammation produces empyema; and in like manner suppuration sometimes occurs as the immediate consequence of inflammation of the synovial membrane. These cases are entirely different from those protracted ones just now described, and they are much less unfavorable. In the former, matter forms in different places, and there are, perhaps, many abscesses in various parts of the joint; but here the whole joint is full of matter: it is one large abseess. The treatment is sufficiently simple. An opening should be made as soon as possible, and the matter let out. There never was a more absurd proposal than that of making a small and valvular opening for such large abscesses; such an opening will not allow the matter to escape; it heals directly, and the matter is again collected. All large abscesses, and those of joints especially, should be opened by free incision, so that the pus may flow out without squeezing, or any kind of rough manipulation. Mischief sometimes arises from opening a large abscess; but it is generally from the fault of the surgeon, who, by rough treatment, induces inflammation of the parietes. Not unfrequently pressure causes a discharge of blood from the small vessels, which, mixing with the pus that is secreted, afterwards becomes putrid; hence a putrid abscess. There should not be the pressure even of a finger on the abscess, with a view to force out its contents. Make a free opening, let the matter flow of its own accord, at the same time keeping the joint in a state of absolute and complete repose by means of leathern splints, or by supporting it with pillows and cushions, and it will scarcely ever happen that any mischief follows. If the first opening be made in a depending part, it may be all that is wanted. It may be, however, that one or two openings will be required in other situations afterwards. By pursuing this plan of treatment, and very gentle management, the limb may generally be preserved. In these cases the disease has its origin in the soft parts. The bones are, in the first instance, in a healthy state, and the progress of the disease is so rapid, that, although deprived of their cartilages, there is not time to become materially diseased afterwards; and this explains why there is so much better chance of preserving the limb where there is this kind of abscess, than where such an abscess occurs under other circumstances. After this extensive suppuration, which is always attended with a total absorption of the cartilages, no better recovery is to be expected than by anchylosis—a good recovery—for the limb will be very useful afterwards. Some months may elapse before it will be in a fit state to bear the weight of the body; and during the greater part of this time it will be necessary to keep the joint supported by splints, unless the leg be bent on the

thigh, in which case it will be necessary to have recourse to the screw instrument, with the splints at the posterior part of the leg and thigh. In using the screw, it is better to leave the leg a very little bent on the thigh, which is more convenient for walking than the straight position, the heel of the boot or shoe, afterwards used, being a little raised.

18. *Chronic Gouty Affection of the Synovial Membrane.*—Another form of synovitis is met with in persons whose mode of life is such as to generate the gouty diathesis, but who are not liable to regular fits of gout. It is a chronic disease, coming on insidiously and advancing slowly. The patient first complains of one of the joints of one of his fingers being a little painful, and somewhat stiff and enlarged. By and by another joint becomes affected in the same manner; then others in succession; then some of the larger joints, as the knees. In these cases there is, for the most part, but little fluid collected, sometimes none that is perceptible; but the synovial membranes gradually become thickened, and the joints stiff. After the lapse of some years the cartilages, and even the bones, become absorbed; the fingers being actually shortened, and twisted in a variety of ways. Not unfrequently, in cases of long standing, the bones of the knee, examined in dissection, present a singular appearance, as if they had been actually worn away by friction; and, in fact, they are so worn away, but as a process of repair has been going on at the same time, instead of the cancellous substance being exposed where the friction has taken place, they present a hard compact surface. In some instances there is a deposit of lithate of soda or chalk-stone, in the joint itself and its neighbourhood. This, like the last, is a very troublesome form of the disease, very little under the dominion of remedies. On the whole Sir Benjamin has found the exhibition of very small doses of the acetous extract of colchicum to answer best,—a single grain, with the same quantity of blue pill, and three grains of extract of hop, every night at bedtime, with a gentle aperient once in three or four mornings. These pills may be given for a fortnight, then suspended for one or two months, then given for a fortnight again, and so on. At the same time a grain and a half or two grains of iodide of potassium may be given, with ten or twelve of the bicarbonate of potash, twice daily, and persevered in for six or eight weeks at a time. This system may be continued, with occasional intermissions, for one or two years, or even longer. In several cases the patient has been much benefited, but in others no treatment has had any dominion over the disease. This affection is not in itself dangerous, but indicates a bad state of constitution; and persons thus affected are liable to other diseases.

19. *Gonorrhœal Inflammation of the Synovial Membrane.*—A patient has a discharge from the urethra generally to be traced to infection, this continues, and a few weeks afterwards he complains of pains in the joints with effusion. The degree of inflammation is sometimes intense, at others very slight. Not infrequently, in addition to an effusion of serum, these is an effusion of lymph, causing a stiffness of the joints, leading occasionally to ulceration of the cartilages, terminating in anchylosis. Sometimes in the early stage there is purulent ophthalmia, and in the more advanced stage iritis.

This is a most intractable form of the disease, scarcely any remedies having dominion over it. The acute symptoms may be met by the usual active means, but they never succeed in cutting it short. When chronic, the iodide of potassium appears to be of more use than anything else. The patient is very rarely cured, although the disease ultimately wears itself out, and if there be anything of much service it is going into a warmer climate. Patients have recovered in going to the south of Europe, and some of them in coming back to England have had a return of the articular inflammation.

20. *Primary Ulceration of the Cartilages of the Knee.*—In the cases hitherto mentioned the cartilages become ulcerated as a consequence of disease in other textures; but sometimes this process takes place apparently from disease originating either in the cartilage itself, or in the surface of the bone to which it is connected. Not that the ulceration always begins on the surface towards the articular cavity. There is reason to believe that, in some instances, the morbid action originates in the surface of the bone with which the cartilage is connected, extending from thence to the cartilage itself; and in practice these two orders of cases cannot be distinguished from each other. The disease may, for the most part, be traced to rheumatic inflammation, having this peculiarity, that it is confined, in the first instance, to the harder textures. There are, perhaps, wandering pains, first in one shoulder, then in the other, then becoming, as it were, concentrated in the knee, the cartilages of which soon afterwards begin to ulcerate.

In an early stage the cartilage is absorbed at one point, and the surface of the bone becomes exposed and carious. Probably there is no effusion of any kind, but the exposed surface of bone is more vascular than ordinary. As the disease advances the ulceration becomes more extensive, and when it has attained a certain point pus is formed in the joint. As in some cases there is suppuration without ulceration, so in these there is ulceration without suppuration. The two processes are generally combined, but there is no necessary connexion between them. The cartilages at last become destroyed throughout the knee, on the femur, the patella, and the tibia. Sometimes, when abscess forms, it is limited by adhesion to one part of the joint, and then perhaps suppuration takes place in another part of it. In other cases the abscess is not so limited; the whole joint is distended with matter, so as to form one large abscess, and in this stage the bones in the neighbourhood of the joint become inflamed and dark coloured; the matter lodging in the cancelli becomes putrid, probably a portion of the bone loses its vitality and exfoliates into the articular cavity, while the abscess finds its way out, making sinuses under the fascia and among the tendons before it presents itself externally.

While these changes take place they are indicated by the following symptoms. Generally there are rheumatic pains in other joints in the first instance; by and by the pains are, as it were, concentrated in the knee. The pain is very severe, and yet the joint is scarcely at all swollen, or rather there is no swelling in the first instance. After a time there is a slight general enlargement, the consequence of a deposit of lymph or serum outside of the synovial membrane. The swelling assumes the shape of the articulating ends of bones, and appears greater than it really is; because the muscles of the thigh are wasted above, as those of the leg are below. There is starting of the limb at night. The pain is aggravated by motion, and especially by pressure on the patella; and whenever, in this or any other case of disease of the knee, this symptom exists, the cartilages of the joint are probably beginning to ulcerate. The disease may go on for many months, the patient's health suffering from disturbed rest at night and constant pain in the day, and yet without suppuration taking place. By and by matter forms, and there is then an aggravation of the symptoms. The matter burrows in various directions among the muscles and tendons, making numerous and circuitous sinuses.

It is important, in the first place, that the joint should be kept in a state of the most perfect repose, and splints are required. Although I believe that issues, setons, blisters, and counter-irritants do harm rather than good in some other cases of diseased joints, yet they are beneficial here. A caustic issue on each side the patella will very often stop the pain and the starting of

the limb when other means have failed. Still, in the majority of cases issues may be dispensed with. The chief remedy is mercury, given as for iritis, or chronic inflammation of the testicle; two grains of calomel and one third of a grain of opium three times a day till the gums are affected. Its influence in stopping a rheumatic ulceration of the cartilage is remarkable, very seldom failing if given before suppuration is established.

But some patients cannot take mercury; then sarsaparilla or the iodide of potassium may be substituted. Mercury is the most efficient of the three remedies, and next to that, sarsaparilla. In many cases the best mode of proceeding is to exhibit mercury until the disease is arrested, and follow it up by a course of sarsaparilla. It should be continued till the gums are somewhat sore. Mercurial ointment may be rubbed into the thigh in the usual manner, when the patient is unable to take it internally.

In the great majority of cases no other treatment is required, and it is only if these remedies prove insufficient that recourse need be had to caustic issues. The use of these may be dispensed with in inflammation of the synovial membrane, and in scrofulous disease of the joint, employing them only now and then in this particular disease. If abscess be formed, it will require to be treated as in cases of scrofulous disease. Scrofulous disease of the joint occurs usually in children; this affection rarely suppurates, except in the adult, hence when matter once forms the limb will seldom be preserved; there not being the same powers of repair in the adult as in a child.

If matter be not formed, the limb may always be preserved; and, in the majority of cases, the mobility of the joint also. Where the cartilage is extensively destroyed this last result must not be expected. In severe cases, the progress towards anchylosis is sometimes very rapid. In a case in which the symptoms were of a more than usually urgent character, the patient recovered under the mercurial treatment; but when, at the end of about three weeks, the symptoms had subsided, the knee was found to be completely fixed, and the mobility of it was never restored.

21. *Scrofulous Disease of the Knee-joint.*—The malady has its origin in the bones. There appears at first to be a disease of the cancellous structure; of which the most marked effect is a deficient secretion of earthy matter. The bone is soft, so that it may be cut with a knife. In the first instance it is redder than natural, from increased vascularity, and there is an effusion of serum into the cancelli. As the disease advances the bone becomes less vascular, and instead of being red it becomes yellow, from the deposition of a cheesy unorganised matter. At last there is scarcely a vessel carrying red blood to be seen.

These changes in the condition of the bones are followed by others which affect the cartilages. The surface of the bone to which it is connected is more vascular than natural, and the vessels may be seen, in certain cases, extending from it, and carrying red blood into the substance of the cartilage itself. At this period the cartilage seems to adhere rather less firmly than ordinary to the bone. It may be peeled off in a way which could not be done in health, and when removed, spots of ulceration are observable on the under surface where it was in contact with the bone. In the space between the ulcerated surface of the cartilage and the bone there is a deposit of a small quantity of very vascular lymph. Ulceration being once established, it extends through the cartilage in one spot, and that spot afterwards increases in diameter. The same thing happens in other parts of the cartilage, and ultimately the ulcerative process destroys the whole.

In some cases the cartilage may be destroyed to a considerable extent without the occurrence of suppuration. For the most part, however, suppuration

occurs at an early period. The deposit of pus does not take place in the whole joint at once. There may be one collection of pus between one condyle of the femur and the corresponding surface of the head of the tibia; then another collection in some other situation, these different abscesses being separated from each other by deposits of lymph and adhesions. Hence, there may be two or three, or even more abscesses in the joint distinct from one another. Whilst these are being formed the ulceration of the bone advances, till at last a considerable quantity becomes absorbed. The abscesses steadily, but very slowly, find their way to the surface. The consequence of the complicated structure of the knee-joint is, that the abscess seldom comes directly straight to the surface. It runs first in one direction, and then in another, where there is the least amount of resistance, forming numerous and circuitous sinuses. When it presents under the skin, the process of ulceration goes on but slowly, and it may sometimes be perceptible for three or four months, or even longer, before the final escape of its contents.

The bone being more vascular than natural at first, afterwards becomes less so, and sometimes it perishes, leaving a portion of dead bone in the joint, which at last separates, making the case hopeless.

One remarkable feature of the disease is the absence of pain in the beginning. This leads to its being frequently overlooked. The parent observes that the child limps a little in walking, but makes no complaint; by and by he limps a little more, and some day in taking off his clothes the knee is observed to be a little larger, and not so moveable as it should be.

Although this is a most serious ailment, no anxiety is felt, as there is little or no pain. However, if the child be taken to a surgeon at this period his practised eye should immediately detect the disease. The joint is generally a little bent, somewhat larger than it ought to be, and presents a rounded appearance. There is no pain on handling, and no effusion of fluid. The enlarged and rounded appearance arises from a deposit of lymph and serum in the cellular membrane external to the joint, so that the disease must have made considerable progress before there is any considerable enlargement. The enlargement appears greater than it really is, from the child sparing the limb, and the muscles of the thigh becoming more or less wasted.

At this period, although the leg is somewhat stiff, it admits of a certain quantity of motion. If the disease be still neglected the swelling increases. As the cartilages begin to ulcerate there is pain, and the ulceration, combined with the formation of matter, produces painful startings at night. The general health now begins to suffer. By and by an abscess shows itself on one side of the joint, and comes slowly forwards; then another appears at a different part of the joint, and at last there may be three or four openings of sinuses leading to different parts of the knee. These are very seldom found to take a straight course, but every now and then they do so, and then the surface of exposed bone is felt at the bottom. The appearance of the knee and the history of the case give all the information required in ordinary cases. When the joint has been destroyed by repeated abscesses the leg is thrown into a half bent state. The flexor muscles constantly acting on the head of the tibia, draw it backwards, and lodge it in the ham, producing that kind of dislocation described as occurring in some cases of protracted inflammation of the synovial membrane; the extent of the displacement varying according to circumstances.

If no treatment has been had recourse to, or if, although the limb has not been neglected, remedies have been of no avail, and the patient at last suffers constant pain; he has sleepless nights, becomes hectic, with a quick pulse, liability to perspirations, and the health gradually sinks. The disease may

be the means of destroying life if the limb remains on, and yet the affection of the joint is never the immediate cause of death. Another disease arises out of it, which directly leads to the fatal result. In one case there are tubercles of the lungs; in another, diseased mesenteric glands; in another, serous effusion into the ventricles of the brain; and it is generally from one of these affections that the patient at last sinks and dies.

22. *Treatment of Anchylosis of the Knee-joint.*—In cases where the knee-joint has become anchylosed in a flexed position, several modes of treatment have lately been resorted to. Subcutaneous incision of the hamstring tendons followed by gradual extension has sometimes succeeded. Subcutaneous incision followed by forcible and more sudden extension has been proposed, and will succeed in bringing the limb to a right line, but is regarded by judicious British surgeons as a harsh and dangerous proceeding. (Fergusson's Practical Surgery.) More recently Dr. Barton and Professor Gibson, of Philadelphia, have both, in examples of bony union with the limb greatly bent, cut out a wedge-shaped portion of the lower end of the femur above the condyles, and then gradually extended the limb with success. Mr. Fergusson considers this operation worthy of imitation, as it was attended with great advantages in both the cases here alluded to. Dr. Barton's patient could walk with ease at the end of eight months, and could mount his horse with facility, or travel on foot forty or fifty miles a day.

In our present volume we record another mode of operating, adopted by Dr. Buck (Ext. art. 41, p. 95), which differs from Dr. Barton's, inasmuch as the wedge-shaped piece of bone is removed from the anchylosed joint itself, the hamstring tendons having been previously divided by subcutaneous incision. We will not presume to anticipate the judgment of our professional brethren on this ingenious although severe expedient. Where an operation is called for they will no doubt compare its advantages and disadvantages with those which attend the amputation of the limb.

## § VII.—*Injuries and Diseases of the Bones.*

23. *Fractures.*—Dr. Jarvis has published some important statements on the subject of fractures and dislocations, with a view to recommend a new instrument for reducing and adjusting these injuries, and maintaining coaptation. It is called the "Surgical Adjuster." By its means the surgeon has at his command an extending and counter-extending force equal to that of twelve men, all or any part of which he can apply to any limb at pleasure, and yet the limb remain perfectly moveable and free for manipulation. It is intended to reduce *all* dislocations, to adjust *all* fractures, and to maintain coaptation of *all* fractured bones, where extension and counter-extension are requisite to accomplish either of those ends. For the application of the instrument two persons are sufficient, or, if necessity require it, the surgeon alone may suffice. The bed of the patient, a table, or even the field of battle, offer as great conveniences for its use as the amphitheatre.*

Dr. Jarvis remarks† that much of the practice of the present day in this department of surgery is unsettled, and inconsistent with the laws of mechanics, and that these laws are often violated or neglected in attempting to apply them to the treatment of fractures and dislocations. To illustrate this he refers to the effects produced by muscular contraction in a fractured femur. On the attachments, locality, and direction of the fibres of the muscles, depends the relative position which the fractured portions occupy, and to make

* Gaz. des Hôpitaux. † The Lancet, Jan. 3, 1846.

his views plain on this subject, Dr. Jarvis divides the muscles of the thigh into three classes.

1. Those which pass lengthwise over the femur, and yet are not attached to it at either extremity. These include the rectus-femoris, the sartorius, the gracilis, the semi-tendinosus, the semi-membranous, and the long head of the biceps flexor cruris; and among these may be classed, from its mechanical action on the limb when broken, the tensor vaginæ femoris. When the bone is broken, these only tend to shorten the limb by approximating the two extremities of the bone, and in a fracture of the shaft do not in any measure operate directly to throw the fractured portions out of a normal line, since a muscle acts only in a right line between the points of its attachment.

2. Those where the fibres are attached to the femur at one end while the other is united to the pelvis above, which comprise the pyriformis, the superior and inferior gemellus, the internal and external obturators, the three glutei, the quadratus femoris, the three adductors, the psoas magnus, the iliacus internus and pectineus. All these have their attachments to the femur at and above the point where the gluteus maximus is inserted, excepting the adductor longus, and about two thirds of the adductor magnus, the fibres of the last descending quite to the inner condyle.

3. Those whose fibres are attached to the femur by one extremity, while the other descends to be united to the tibia or fibula below, including the two vasti, the crureus, the two heads of the gastrocnemii, and the short head of the biceps. These have all their attachments to the femur, below the insertion of the gluteus maximus, excepting a portion of the two vasti and of the crureus, whose fibres are attached the entire length of the shaft of the bone. The fibres of this class diverge from the femur to the knee, as the fibres of the second class do from the femur to the pelvis.

When the femur is broken it no longer serves as a connecting link to preserve a just balance between the action of all the muscles—as the centre of that harmonious action; but a new centre and a new combination of actions form around each broken portion.

If the fracture be in the upper third of the bone the figure of the limb is distorted; it forms a peculiarly distinct angle at the point of injury, an unusual convexity at the upper and front part of the thigh. This arises from the balance of power, on the side of the psoas magnus, iliacus internus and pectineus muscles situated anteriorly, over those muscles attached posteriorly; and which casts the upper portion forwards. The gluteus maximus serves as a fulcrum to the lower portion in carrying the knee backwards. Hence the angle, and the inclination of the lower portion to separate from the upper or rising end of the bone, which is prevented taking place to a greater extent than actually happens, by the attachment of the bone anteriorly to the vasti and crureus. There is also on the lower portion always a balance of muscular power on the posterior side (inclining it backwards from the favorable position when the shaft is broken) of the heads of the gastrocnemii and the short head of the biceps, as compared with their antagonists, the vasti and crureus. This balance of muscular power must evidently be increased both in the upper and lower portions, as we depart from that angle of the limb which places the fractured portions nearest a normal line.

It must be apparent that to place the limb on a line with the body in this fracture causes the fractured extremities to be separated to the utmost limit which the vasti and crureus muscles will allow. Any force, therefore, which can overcome this separation must be more than equal to all the muscular contractions which produce it, and this force must be applied antero-posteriorly; it would require an amount which is not always to be quietly borne in an irri-

table system and feeble constitution, especially should there be strong muscular contractions. A greater amount of extending and counter-extending force would be required to restore the normal length of the limb than if it were first placed so as to relax the flexor muscles. The muscular tissue would be more likely to be wounded and irritated by the fractured extremities when the position is such as to render coaptation difficult, than when it is rendered comparatively easy. Hence all the modifications of Desault's splint, which is used mainly on account of the extension and counter-extension to be obtained by it—a principle sound in theory and important in practice, when properly applied—are in this instance employed at the complete sacrifice of another principle, of equal or greater importance, viz. *to adopt that position which inclines the fractured portions nearest a normal line, and most effectually relaxes the muscles of the limb.*

With the double inclined plane we not only relax the muscles which pass over the thigh, but we can also relax the gastrocnemii and short head of the biceps, as well as flex the limb so as to incline the lower portion of the bone nearest to a normal line with the upper portion; we can also approach as near to coaptation as the action of the muscles will admit of. Still, unless the weight of the body is sufficient to answer all the purposes of extension and counter-extension, we shall fail to preserve coaptation, although we may once have effected it. To show the importance of extension and counter-extension in this position of the limb, not more for the purpose of coaptation than for relieving the tendency of the fractured extremities to separate, let the attention be fixed on the fibres of the vasti and crureus attached the whole length of the upper surface, and to the two sides of the bone, and descending to the knee to be united at the patella, and it will be seen that the effect of traction by means of these muscles would be to elevate the depressed portion of the bone to a line with the upper, and thus to perfect coaptation. It is this which is wanted in the double inclined plane, for although extension and counter-extension may be applied, the traction does not operate in the exact line of the shaft of the bone. All these contrivances make the perineum one point of traction, and the foot or the leg the other, and to act with any force from these points on a limb laid on the double inclined plane, that force is necessarily so applied as that more of it is spent at right angles with the bone than is exerted in the line of the limb; all that is thus spent tends to throw the fractured portions out of a normal line; the amount of force being altogether beyond the amount required if rightly applied, for the object in view, and applied in a manner which is not only likely to give pain at the knee, but as the ligaments become elongated by continued extension, to deceive a surgeon as to the length of the limb.

If the fracture of the femur be between the insertion of the gluteus maximus and the knee, a greater mobility is observed between the upper and lower portions of the thigh than in the former case. That peculiar angle and convexity of the thigh does not appear, and the deformity which may be greater has other characteristics. The lower portion may appear as if thrown off from the upper, or if an angle is formed it may be either laterally or posteriorly, the inferior portion being always found to lie at the back of the superior. This difference in fractures so near together in the same bone is owing to the absence of the gluteus maximus in the lower portion, to serve as a fulcrum for those muscles which throw the fractured ends forwards, and the knee consequently backwards.

In a fracture of the neck of the bone one limb is two or three inches shorter than the other, the foot is turned outwards, and perhaps the trochanter major may appear somewhat prominent. The question arises, why so marked

a difference between this and the other two cases? In this instance the muscles of the first and second class only are concerned in producing the derangement in the line of the bone. The lower portion, which now includes the whole of the shaft and the trochanters, is thrown directly upwards, and the neck only is thrown from the normal line, by the action of the muscles attached to the trochanter major and the pelvis. The head of the thigh-bone serves as a pivot on which, at the pelvis, turns all the movements of the body with the lower limbs. The straight position must be the one which the mechanical effort of the muscles in direct shortening the limb requires, and for this purpose the straight splint of Desault would appear to be well adapted. But there is nothing in this apparatus which will assist in restoring the *neck* of the bone to its normal length, it is calculated, on the contrary, to shorten it still more. Thus, in applying Desault's splint, one point of traction is such as to operate from the perineum, by a band passed upwards and outwards on the anterior and posterior sides of the pelvis, the other point of traction is at the foot, both extremities being secured to the splint. It is here plain, that just in proportion as force is applied at the foot to lengthen the limb, a portion of that force must operate at the top of the splint, to incline it towards the perineum; that is to say, out of the direct line of the two extreme points between which the force is required. The upper part of the splint must operate to depress the hip, in proportion to the angle at which the belt is made to operate from the splint, and if the length of the neck of the bone is of the least importance, or the wounding and irritating the muscles by the fractured extremities, this application of the splint cannot be right in surgery.

Dr. Jarvis's surgical adjuster is invented to fulfil the following indications in the treatment of fracture and dislocations:*

1. To establish a line of extension between any two given points of the body.

2. To furnish an extending force which is unlimited in principle, yet easily calculated, and which is perfectly subject to the will of the operator.

3. To be able to combine with the simple extending force a lever of the first or second order, according to the exigency of the case, to act transversely to the line of extension, yet without in any way interfering with it, subject in like manner to the will of the operator.

4. To fulfil all these indications without in any way interfering with the mobility of the limb.

5. To enable the operator to apply the force whether direct or transverse, either rapidly or slowly, and to retain it on the limb during his pleasure.

Dr. Jarvis lays down the four following rules as essential in the treatment of all fractures:

1st. So to place the limb as that the fractured portions shall be inclined the nearest to a normal line of that bone, which can be effected by the action of those agents.

2d. So to apply extension and counter-extension as that the smallest amount capable of preserving coaptation shall be employed.

3d. So to apply force as that the line of extension shall operate the nearest possible to a perfeetly normal line of the fractured bone.

4th. Let the points of extension and counter-extension be confined within the limits of the fractured bone.

In proof, Dr. Jarvis remarks,† that these rules are not correctly applied by the apparatus in general use—in a fracture of the thigh, between the tro-

* The Lancet, Jan. 10, 1846. † Ib. Jan. 17.

ehanter minor and the inscrtion of the gluteus maximus, and also in one between the insertion of the gluteus maximus and the "braee," by plaeing the limb in a line with the body, the fraetured extremities are inclined further from each other as before shown, instead of the reverse, and the first rule is violated. This is the ease with Desault's splint. It also violates the second rule by requiring more foree to restore the normal length than when the flexor muscles are relaxed. The third rule it appears not to violate. The fourth, however, is violated.

With the double inclined plane the first rule may be correctly applied; the second, third, and fourth are altogether neglected.

With the double inelined plane so arranged as to produee extension and counter-extension from the extreme point of the limb, the first rule is correetly observed; the seeond is violated by there being more force exerted at right angles with the bone than employed in the line of the limb; the third rule is violated by the fraetured extremities being thrown out of a normal line; and the fourth is violated by the points of extension and counter-extension not being within the limits of the fraetured bone.

In a fraeture at the neek of the femur there will be less motion at the point of fracture, and between the fraetured portions, by placing the patient on the side opposite the one injured, than by placing him on his back, as is usually done. Thus, a person lying on his baek cannot raise his shoulders, or turn them on either side, even but a trifle, without producing motion at the fractured point, and patients are eonstantly inelined to do this; motion, the great disturber of all osseous union, is constantly although involuntarily employed by the patient, and it is no wonder that so few fractures at the neek of the bone result in bony union. By placing the patient on the uninjured side the position subjeets him to greater impediment to motion of the shoulders; he would be unlikely to raise his shoulders for any object, yet he eould use his head freely without eommunieating motion to his shoulders. The inelination to turn to either side eould be restrieted, and if the limb were properly secured with the pelvis, it would move with the body without produeing motion at the site of the fracture.

The surgieal adjuster is intended to correet all these errors in prineiple, its mechanism is merely a happy application of the pinion wheel and raek-bar to surgery. A brass ease, thirteen inehes long, one ineh and a half wide, and half an inch thiek, ineloses a pinion wheel which moves a steel raek-bar, with teeth corresponding with the pinion wheel, and of the same length as the case, whieh rack-bar constitutes the extending power. A ratehet wheel on the exterior of thc ease, operating on the same shaft with the pinion wheel within, is held by a cateh so as to maintain the extcnding foree at any desired point. Upon the axis of thcse two whcels is applied a lever, of length sufficient to give the instrument thc power of twelve men. The extending power oceupies one side of the brass case, the eounter-extending power the other side, provided with a mcehanism whieh allows of its elongation or eontraction at pleasure, and aeeording to the case to be treated. The raek-bar is bent at right angles at one extremity, in order to make the line of extension in the axis of the limb, while the instrumcnt is applied parallel to its side.

At the eounter-extending point are alternately applied several appendagcs for properly seeuring the instrument to the parts whieh form the point of resistance for the eounter-extending foree. Thus for the thigh there is a long steel fork, betwcen the braneles of whieh is suspended a eushioned roll. When this fork is applied to the perineum, so that the eushioned roll rests upon the great tuberosity of the isehium, one of its branches passes in front of the pelvis, while the other lies to the back of it, the fastenings which unite the

extremities of the fork to the cushioned roll form the points of counter-extension; thus the points of traction are bounded on one side by the extremities of the fork, and on the other by the foot of the rack-bar.

Certain modifications of these appendages for the securing of the limb render the application of the instrument easy to all parts of the body.

24. *Straw Splints.*—Mr. Tufnell laid before the Surgical Society of Ireland a form of splint which he had been in the habit of using for some years, and which he believed had first been invented by Baron Larrey. (See Abs., vol. i, art. 72.) It is made by filling a linen bag of the size of the splint required with unbroken wheat straw, that used in the country for thatching being the best. The straw must be cut off at the length to fit the limb, and the open end of the bag sewn up. The splint thus made combines the double advantage of being both splint and pad in one, and possesses the following advantages over the wooden or whalebone splints commonly in use. When lotions are used to subdue the inflammation in a recent fracture, the apparatus need not be removed from the limb, as evaporation takes place as readily through the straw as if the limb was lying unconfined. No padding being used, the hard lumps formed by tow or wool that has been wetted and allowed to dry, and which cause such pain and inconvenience to the patient, are avoided, and if undue pressure is sustained by any projecting process of bone, by inserting the point of the finger and rolling the straws one upon the other, a hollow is at once formed for the part. In fractures of the upper arm, Mr. Tufnell said he had found great inconvenience in using the wooden splints and pads from the difficulty of keeping the four angles in contact, especially at night, and in muscular arms, the edge of one splint rolling over the other, and at once displacing the whole apparatus; whilst the straw splints when bound on the limb so embraced it as to keep up one uniform pressure on all sides, and in fractures of the forearm acted most beneficially by pressing the muscles into the interosseous space more and more as the fillets or bandages were tightened. These, he said, were advantages he had found to result from the common use of the splints; but what he had to adduce most in their favour was the power they gave to the military surgeon and country practitioner of forming at once, in almost every situation in which he could be placed, an efficient contrivance for the treatment of all ordinary fractures; whilst for hospital practice their cheapness was no inconsiderable advantage, and in compound fractures, by directing the nurse to take the soiled straw, wash, and refill the case with fresh at each dressing, the surgeon was enabled, at the very least expense, to have a clean apparatus, and thus avoid the necessity of keeping a source of effluvia near the patient, at a period when his recovery and well-being so mainly depend upon pure ventilation and fresh air. In fractures of the forearm, by substituting a fillet and buckle for the ordinary tape or bandage, the patient is enabled to tighten or relax the pressure of the splint according to his own sensations of uneasiness or comfort, and the tightness and regulated pressure makes them a much less irksome companion than the old-fashioned wooden splint.

Dr. Jacob and others expressed their approbation of this splint, and regard Mr. Tufnell's suggestions as most valuable.*

## § VIII.—*Dislocations.*

25. Dr. Jarvis remarks† that the first object in the reduction of dislocations is to overcome the resistance offered by the muscles, by their power of approxi-

* The Dublin Medical Press, Dec. 10, 1845. † The Lancet, Jan. 3, 1846.

mating their points of attachment, for which extension and counter-extension are neeessarily employed, and either manual assistance or the pulleys are resorted to, both of which act mechanieally alike in producing traetion on the limb; attention is then drawn to the fact that they both act from fixed points over which the surgeon ean have no control, so that if the line of extension happen to be correct he does not desire it changed, but if it happen to be incorrect the force must first be relaxed before he ean change it.

Thus in luxation of the femur into the ischiatic notch, in eonsequence of the oblique position which the head and neek oceupy to the shaft of the bone, any force applied to the head from the other end of the shaft and in a line with it, necessarily forces the head in some degree (while passing through the muscle) to follow the obliquity of the neck, and not the line of the shaft, thus making an oblique track from the cotyloid cavity. Suppose pulleys applied, the head and neck being forced obliquely into the muscular tissue, as not unfrequently happens, we have power constantly and steadily operating from fixed points, and before the direction of that foree can be changed we must relax it. The head and neck, from their oblique position to the shaft, especially since the head is larger than the neck, would be likely to operate like a hook around a portion of musele whieh lies direetly below them, and before they could be disengaged, the force operating on one line would be likely to tear through the musele or break the bone—a case which has happened more than once. But if, instead of the extending point being fixed, as in the case of the pulleys, it is left free, and subject to the command of the surgeon, while the foree is steadily and constantly applied, the surgeon would be much more likely to disengage the head by giving free motion to the limb, than he would by applying that force in one given line. Here is another error in applying mechanical principles to surgery.

In some dislocations of the os humeri, where the head of the bone is driven into the soft parts, and the neck is elosely embraced by them, we must first disengage the head before we can hope to suceeed in reduetion. With the pulleys, force is steadily applied, but owing to the firmness with which the neek is embraced, and the strength with which the museles contraet, the bone is not relieved from its confinement. If the extending point was subjeet to the will of the surgeon, to move at pleasure, while the force was yet constant and steady, the giving free motion to the limb would greatly aid him in reduetion, and that too without inereasing the power.

In the four dislocations of the femur, Dr. Jarvis's instrument may be applied so as to have any amount of power available whieh we require, and in whatever direction we need, and at the same time to leave the limb just as free for motion as it was without the instrument attached to it. All the indieations required are fulfilled without the extending point being fixed, as by the pulleys or with assistants. In a dislocation of the bone upwards and outwards, the head resting on the dorsum ilii, if you wish to move the limb to disengage the head of the bone from the gluteus minimus, into which it has been driven, while all the power which you have applied is retained, you ean do so. The limb ean be moved with the same faeility as before the instrument was applied. The head of the bone can be thrown from the dorsum ilii while an assistant rotates the thigh on its own axis, a side lever being at the eommand of the operator which does not in the least affeet the line of extension.

In a dislocation into the ischiatic notch the side lever is used merely to lift the head of the bone from the saero-seiatie notch, while the extending force is applied to bring it forwards from that deep situation to the acetabulum.

In a dislocation on the pubes the head of the bone is out of the line of the upper third of the ilium and the inside of the knee, some two or three inches; it lies above a transverse line passing through both aeetabula about an inch.

The greatest amount of force to reduce this dislocation is generally required to operate transversely to the body, yet much force also is required to restore the normal length of the limb. With this instrument properly adjusted, while the extending force is applied, the instrument and limb may be gently but firmly carried outwards. The instrument itself becomes a lever, a strap crossing the dorsum of the ilium the fulcrum and the head of the bone the body to be moved, and the surgeon gently applies his own force to the end of the lever as the moving power.

By an entire change in the application of the power the instrument is made available in luxations into the foramen ovale.

In the 'Gazette des Hôpitaux,' Dr. Huet states that in Dr. Jarvis's instrument we have a means of extension and counter-extension, powerful and at the same time regular, subject to the will of the operator, and easy of application. There will no longer be occasion to look around for fixed points of extension and counter-extension, these points departing directly from the centre of motion of the instrument. The operator will have at his disposal an enormous power which the most vigorous muscles cannot resist. He may increase it, diminish it, apply it rapidly or slowly, according to the resistance of the muscles, without danger of injuring them in any manner; and he can act with facility upon the mobility of the dislocated limb during the whole period of reduction. These and many other advantages are enumerated; we have examined the instrument, the cost of which is ten guineas; we can testify to its ingenuity, and it appears to us to be correct in principle, and capable of fulfilling the purposes professed; but practical experience alone can determine definitively as to its real utility.

## § IX.—*Amputations.*

26. After remarking on the importance to life of saving blood in many cases where amputation is resorted to, Dr. A. J. Hanney,* of the Glasgow Royal Infirmary, states that the veins of the portion of an extremity amputated pour out blood most copiously, often doubling the quantity otherwise lost, and that in his belief the loss by the venous trunks is augmented by the tourniquet. He recommends, instead of this instrument, the pressure of an experienced hand, to which may be conjoined with the most unequivocal advantage, in the way of diminishing this loss, the application of a roller or bandage, very equally and neatly—very firmly and perfectly adjusted—so as to compress the limb with all bearable firmness from its very extremity upwards, as high as the point of amputation will admit of.

For the purpose of shortening the commonly tedious and painful dissection back of the flap or cuff of skin in circular amputations, Dr. Hanney requests the assistant to provide himself with a scalpel, and to dissect back the cuff of skin on one side, whilst he is doing the same on the other, thus lessening by one half the period occupied in this part of the process.

Dr. Hanney states that in the use of sutures, when a flap is of sufficient length to meet without the least dragging or stretching, stitches are beneficial, and seldom to be omitted; but on the other hand, if the flaps be scanty, and if the employment of the stitch would keep them on the stretch in the least degree, they prove mischievous, and should not be employed.

For the purpose of mitigating the sufferings of the patient and the shock to the system after an important amputation, and thirty or forty minutes *before* proceeding to the dressing, Dr. Hanney administers with manifest advantage a rather powerful opiate, and his observation of the good effects of this practice has led him to have recourse to it in the few first dressings after amputation of the large members in every instance. This practice was recommended by Van Swieten.†

* The London Med. Gaz., Nov. 1845, p. 1275. † Ibid., p. 1281.

27. *Amputation at the Ankle-joint.*—The reviewer, in the 'Dublin Medical Press,'* of Professor Fergusson's 'System of Practical Surgery,' after mentioning the work most favorably, makes some remarks on Mr. Syme's practice of amputating at the ankle-joint (Abstract, vol. ii, p. 264), which Mr. Fergusson strongly recommends. The reviewer states that he does not coincide in opinion with Mr. Fergusson upon this point; the instances must be very few in which such an operation is admissible, leaving out of question the tediousness of the dissection. He has seldom seen a limb amputated for disease of the parts about the ankle where the tibia was not more or less engaged, and does not recollect having seen one where flaps of healthy integument could have been obtained, either anteriorly or posteriorly, of sufficient size to cover the articular surfaces of the bones. It can be readily understood that this operation may have been performed in cases where milder proceedings would have effected a cure without any deformity; but the reviewer cannot comprehend how such cases bear in favour of it. Finally, he does not think it will have many advocates in Dublin, where amputation is never practised, except as a *dernier ressort*, and very seldom indeed for disease of the ankle-joint, where the integuments covering the instep and heel are in a sufficiently sound condition to admit of forming flaps.

28. *Amputation of the Leg.*—The 'Monthly Journal of Medical Science' contains a series of "Cases illustrating the Advantages of Amputation at the Middle of the Leg," drawn up at the request of Sir Henry Hardinge, by J. A. Lawrie, M.D., Surgeon to the Royal Infirmary of Glasgow.†

The observations are arranged under the following heads:

I. Cases of amputation at or below the middle of the leg, the patient using the knee-joint in walking. II. Cases of amputation above the middle of the leg, the patient using the knee-joint in walking. III. Cases of amputation immediately below the knee, the patient resting on the common pin with the knee bent. IV. The comparative advantages of the two operations. V. The manner of performing them. VI. General inferences.

The high and the low operations are compared, as to their immediate and their ultimate results: 1st. The low operation is less fatal than the high. The statistics of amputation in the Glasgow Infirmary show that of all amputations "for disease," that immediately below the knee is most fatal. Dr. Lawrie is not acquainted with a single instance in which the low operation has proved fatal in Glasgow. A memoir by MM. Arnat and Martin show the mortality in Paris to be little more than one in ten. If the ultimate advantages of the low operation are equal, or even somewhat inferior, the comparatively great mortality justifies the opinion that the high operation ought to be abandoned. The low operation is less painful, more easily performed, and the small amount of wound ensures a more perfect cure. 2dly. As to the ultimate results: the important difference between the two is, the one ensures the use of the knee-joint, the other does not, or at least does so imperfectly. This *per se* is a great advantage. There is not a case detailed by the author the subject of which did not admit that it would be of great consequence if the knee-joint could be made available. The whole question then resolves itself into the means we possess of enabling the patient to "avail" himself of the joint thus preserved to him, and a comparison between these means and those employed after the high operation.

Dr. Lawrie furnished models of the mechanical contrivances hitherto used in Glasgow for ensuring the use of the knee-joint. 1st. The short pin, with a knee-strap, without a thigh-piece. Lowest price, 15*s*. 2. The above slightly modified; 15*s*. 3. Either of the above, with a short thigh-piece; 18*s*.

* March 25, 1846, p. 187. † March, 1846, p. 166.

4. The above with a long thigh-piece, the principal point of support being the tuberosity of the ischium; 20*s*.

With the bent knee, *females* invariably prefer the crutch to the common pin, and the low operation, with any one of the above apparatus, is to them so great a boon, that Dr. Lawrie cannot avoid saying, he should reckon any future operator "guilty of an act of cruelty" who would perform the high operation on any future patient if it could be avoided. *Wealthy or independent men* will universally prefer the low operation, with an artificial foot and leg fitted to one or other of the here referred to models. *Men not occupied at very hard labour and in lifting very heavy weights*, always admit that the low amputation and some one of the above apparatus is a great improvement on the high operation and the bent knee. *Labourers engaged in severe toil, and employed in lifting heavy weights*, are the only class amongst which any difference of opinion is met with. Some affirm that for severe and hard labour the high operation and the bent knee is the best; while others declare that for all kinds of work, some one of the above mechanical contrivances is by far to be preferred. But on considering the details of the cases, Dr. Lawrie affirms that they hold out encouragement to give the low operation, *in all cases*, a further and important trial. The cases prove that almost any amount of labour and fatigue may be undergone with the simplest and cheapest mechanical means, and the addition of a large thigh-piece to the short pin will *certainly* enable a patient with a sound stump to endure any fatigue, or perform any kind of work of which a majority of labourers are capable. The latter apparatus gives three points of rest: 1st, below the knee; 2d, above the knee; and, 3d, at the top of the thigh. The weight of the body may either be divided between them or thrown on the thigh, if the stump be tender. In the latter case the stump may be perfectly loose in the box, and used only in bending and extending the knee-joint in walking.

The advantages of the operation immediately below the knee, and of the pin for the bent-knee, are—that it allows the patient to use an apparatus so simple, that the majority of the poorer classes can make it at a small cost for themselves. The bent knee is not liable to be excoriated, except after much walking, and the wearer of the apparatus can undergo a great deal of fatigue. These undoubtedly are immense advantages, but they are not counterbalanced by the great fatality of the operation, and the loss of the motions of the knee-joint.

In his observations on the methods of performing the operation, Dr. Lawrie observes, that in the anterior and posterior flap operation, the posterior flap should exceed in breadth at its base one diameter of the limb, and be fully one diameter in length. The anterior flap, composed only of skin, should be at least half a diameter in length. The projecting ridge of the tibia should be pretty deeply sawn off in a slanting direction. If the limb be removed so low that the tendo Achillis forms part of the posterior flap, it should be cut off with one sweep of the amputating knife before the stump is dressed. If care be taken to avoid interfering with the nerves, this additional step in the operation will cause very little pain.

[The space occupied in this Report by the important subjects of arteritis and the arctation and closure of arteries, diseases of the knee-joint, lithotrity, and fractures and dislocations, &c. &c., has obliged us to pass over several articles of interest in the British and especially in the Foreign journals; but we have preferred rendering our abstracts of Professor Tiedemann's work, and of Sir Benjamin Brodie's and Sir Philip Crampton's Lectures, sufficiently full that they may be useful, to making a less complete report on a greater variety of subjects. For the same reason we are under the necessity of deferring our notice, in extenso, on the subject of Syphilis.]

# III.

## REPORT ON THE PROGRESS OF MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN.

BY HENRY ANCELL, ESQ., M.R.C.S.

Although the security and the advantages which women enjoy, by placing themselves in the hands of scientific obstetricians during the hazardous period of parturition, are now generally well understood, there are those, even in the more enlightened classes of society, who retain the original prejudice against male accoucheurs, and no argument more specious has been employed in disparagment of the practice of midwifery by educated professional men, than that founded upon the assumption that childbirth is accomplished with safety, and is free from its concomitant risks, in countries where the science is unknown. Mr. Roberton, of Manchester, has recently done an essential service by calling the attention of the profession to the subject of Hindu Midwifery, and the sufferings and dangers attendant on childbearing in the East.* We learn from him, that it is an error, and a very gross one, to imagine that childbirth is in general safe and easy in countries where there is no obstetric science. It is a mistake also to suppose that Nature, under such circumstances, is left alone to complete her own work without being interfered with; the very reverse being true. A midwifery dangerously meddlesome is ever found in connexion with a low, stationary condition of society; and it is only where obstetric science exists that nature in parturition is allowed to have fair play. The more advanced the state of science, the simpler and more rational the practice—the less the interference.

The facts in Mr. Roberton's possession are drawn from a Report of a Committee appointed by the Right Hon. the Governor of Bengal. The chief witnesses quoted from being Modusoodun Gupta, a most intelligent native physician, Dr. J. R. Martin, and Dr. Duncan Stewart.

They prove that Hindu midwifery, including labour and after-treatment, is destructive to life in a degree never paralleled in any other quarter of the world. Upon this and other evidence which can be relied on, it appears that native women suffer much in parturition, chiefly from the youth of the mother, although it is rarely attended with the loss of her life, unless some accident, as a cross-birth, or fever ensues. Fever is a frequent occurrence, and the issue is often fatal. Damp, ill-ventilated apartments, which are kept with the doors closed, and filled with smoke from the use of wood fires, and the administration of stimulating spices during the first three days, are its chief causes. The mortality may be judged of by the fact that at least *three or four women out of twenty* die of fever and tetanus within ten days after parturition.

The native midwives are in the habit of hurrying the operation of nature, so as greatly to injure their unfortunate patients. Labour is generally con-

* The Edinburgh Med. and Surg. Journ. April 1846, p. 308.

ducted in the erect posture, and is not considered complete till the expulsion of the placenta, which is effected by force, the quicker the better; and often followed by a dreadful hemorrhage; and children from the time of their birth are subjected to great danger from the circumstances to which they are exposed. The heat and confined air produce irritation in the constitution, and fever and tetanus. The treatment of the mother has a very bad effect on her milk, this also disorders the child, and from these causes the children of the Hindu inhabitants of Bengal are generally weakly.

## § I.—*Diseases of Women unconnected with Pregnancy and the Puerperal State.*

1. *Ovarian Diseases and their Treatment.*—The cases and essays before us are of the highest practical importance, and considering the interest which the subject at present excites, our readers will not regret the space which our report of it must necessarily occupy. The use of the microscope in the examination of the fluid obtained by paracentesis, will, in future, assist in the diagnosis of abdominal diseases; the appearances presented by this fluid, when derived from an ovarian cyst, having been accurately described in the paper by Dr. Bennett, of Edinburgh; they differ entirely from those presented by the fluid obtained from the abdominal cavity in ascites. (Ext. art. 77.) The spontaneous cure of ovarian dropsy from rupture of the cyst, of which occurrence several instances have been recorded, is highly interesting. It will be seen that Dr. Bennett's remark, in the summary of his reasons for urging the operation of ovariotomy in one of the cases, viz. "That it could not be anticipated that five gallons of fluid could be removed from the abdomen every three weeks, for any length of time, without injury to the vital powers," admits of qualification, by the fact related to the Pathological Society of Dublin by Mr. Kirkpatrick; but the most important event of the last few months, in connexion with ovarian disease, is, that some of the most eminent men in Edinburgh have declared in favour of ovariotomy in appropriate cases, which may be fairly taken as a set-off against its unqualified condemnation by some of the leading surgeons in London.

2. *The Spontaneous Cure of Ovarian Dropsy.*—In addition to the case recorded in our Extracts (art. 80, p. 148), Lebert is quoted as having described an instance in which a patient voluntarily rolled down a grassy declivity; when she arrived at the bottom she experienced a very violent pain, efforts to vomit, impeded respiration, and she was unable to move. Symptoms of peritonitis supervened; these were treated antiphlogistically; by degrees the fluctuation diminished, and at the end of some weeks, convalescence proceeding, all signs of the effusion and of the abdominal tumour entirely disappeared. In the 'Annales de Thérapeutique'* also, a case of ovarian dropsy is described, in which a small projection appeared spontaneously in the umbilical region, and ultimately burst. The fluid escaped through the opening, which continued fistulous, and the discharge became puriform. The woman appeared to be cured, and she married and bore a child; after which the tumour returned, and continued to increase till an abscess formed at the umbilicus, through which the fluid was again discharged, and this was followed by a complete recovery.

3. *Case of Ovarian Dropsy. Recovery after suppuration of the cyst.*—Although suppuration undoubtedly sometimes leads to a radical cure, as in

* Dec. 1845.

the instance just referred to, Mr. Brown's case* well illustrates the danger attending this occurrence. It was treated by pressure, mercurials, and diuretics. Pills composed of blue pill and opium were given night and morning, and blue ointment was rubbed into the hollow of the thighs. A wineglassful of a mixture composed as follows—Bicarbonate of potassa 3j; acetate of potassa 3iv; spirits of juniper 3iv; tincture of squills 3j; distilled water ℥viij—was given twice a day, and a flannel bandage applied. In three days severe ptyalism was induced. Incessant sickness occurred, nothing being retained on the stomach, after which the mercurial pills and the tincture of squills were omitted, but on the seventh day of the treatment she was very weak and exhausted. More urine was passed than the quantity of fluid drunk, and in eighteen days, the mouth being still sore, the abdomen exhibited a decrease of circumference amounting to four inches. On the 24th day, ten pints of fluid were removed from the cyst by tapping, after which Mr. Brown placed napkins, carefully doubled up, over the abdomen, so as completely to fill up the pelvic cavity, then passed a flannel bandage round, pinning it each turn, and gradually increasing the pressure each turn, till it was very tightly applied; then stitched a silk handkerchief, on each side, to the bandage, at its lower margin, and passed the end of the handkerchief round the thigh, and tied it firmly at the groin, thus preventing any chance of the bandage getting up. After this the pulse rose to 100, and the skin became a little hot. On the following day there was great pain in the region of the left ovary, with violent retching. Calomel and opium were given, and a mixture of soda and prussic acid to allay the retching. The tight bandaging was continued, when it was found that the bandages did not retain their position comfortably, they were reapplied, a book being first doubled up in a napkin, and pinned down with a towel, and on the 32d and 33d days of the treatment the patient was in great danger, with a fluttering and very feeble pulse, great restlessness and despondency, and a dry brown tongue. After this she rallied a little, then came severe pain over the abdomen, with much tympanitis, rendering it necessary to discontinue the bandaging; these symptoms were met by a few leeches, linseed poultices, &c.; soon after which distinct fluctuation was observed in the left side, the cyst was evidently refilling, and it became evident that suppurative inflammation had been going on, which was attended with low fever and delirium, and she was considered almost hopelessly ill. This brings us towards the close of the seventh week of the treatment. She weathered it, however, and after between two and three weeks she had still aching pain in the cyst, and was wasting very much, her bones being merely covered with skin. On the left side, where there had always appeared to be adhesions, there was a well-marked pointed prominence, as if upon a slight inducement it would burst at that spot. The cyst was tapped with a trocar, and ten pints of pus withdrawn. Subsequent to this the patient rapidly improved; her urine for a long time deposited a thick whitish-looking matter, resembling the pus evacuated from the cyst; the cyst collapsed and gradually contracted, and in spite of the perilous condition in which the patient was placed, and in which she so long continued, the disease became permanently cured.

4. *A second Case of Ovarian Dropsy treated successfully by Pressure, Mercurials, and Diuretics.*—Mr. William Eccles relates a case† in which Mr. Brown's plan appears to have succeeded. Mercurial frictions, diuretics, and tight bandaging of the abdomen with a flannel roller, were the means employed. In ten days ptyalism was produced, and the size of the abdomen was

* The Lancet, Jan. 10, 1846. † Ibid. March 7, 1846, p. 276.

reduced from 34½ to 32 inches. Tapping was now performed, and nine pints and a half of fluid drawn off, the abdomen was again very tightly bandaged, and the diuretic medicine continued. The result is, that the disease appears to be perfectly cured, the lady pronouncing herself to be in better health than she has been in for years. Mr. Eccles qualifies his statement by remarking, that, he means, there is not at present the slightest appearance of a reaccumulation of the fluid, and he recommends his professional brethren to test the merits of the plan.

5. *Encysted Tumours of the Ovary.*—In a paper by Dr. Bennett, of Edinburgh,* a series of cases is given. The second is one of ovarian dropsy, in which twenty-three imperial pints of fluid were removed by paracentesis. Death occurred on the third day from peritonitis; the abdomen contained a tumour about the size of the fœtal head, near the centre of which, anteriorly, was a round perforation, with thickened edges, the size of a fourpenny-piece; through which, on pressing the tumour, a gelatinous milky fluid could be made to flow; this perforation was at least six inches below the incision made into the abdomen to evacuate the fluid. The tumour was a development of the ovary, composed of various cysts; the peritoneal cavity contained about a gallon of turbid sanguinolent fluid, in which floated numerous flocculi of recent lymph.

On microscopic examination, the gelatinous milky fluid was observed to contain numerous corpuscles, varying in character and size. Some were 1-50th of a millimeter in diameter, containing a nucleus and several minute granules. Others were 1-100th of a millimeter in diameter, containing a few granules, and resembling plastic corpuscles. These isolated cells were mingled with numerous granules and a few drops of oil. There were also groups of nucleated cells of two kinds, the one flat, hexagonal or oval in shape, resembling pavement; the other caudate, resembling ciliated epithelium-cells. It must be concluded that the opening in the ovarian tumour was an ulceration occurring in the walls of the sac, and that the fluid evacuated from the abdomen was secreted within the tumour, and passed into the abdomen through the ulcerated opening.

Such ulcerations are very common in the external envelope of ovarian tumours. In some instances adhesions take place between the tumour and peritoneum, preventing the accumulation of fluid in the abdomen. Dr. Bennett's third case illustrates this: there had been frequent tappings, and death occurred from exhaustion; a large encysted tumour of the left ovary was found, consisting of one multilocular cyst, adherent to the whole anterior parietes of the abdomen, with complete suppuration within the sac. In this case, Dr. Bennett remarks, that adhesions anteriorly and laterally, and the support given to the tumour posteriorly, had prevented pressure from within being so directed as to cause ulceration in the external sac. Internally, however, nearly all the cysts had burst into each other, and the tumour presented the last stage of development of these growths, viz. one enormous cavity, with the traces on its internal surface of previous cysts. Under these circumstances, inflammation followed by suppuration took place, no peritonitis occurred, and the patient died exhausted.

In the fourth case there had been several tappings, and death took place by peritonitis; the tumour consisted of one multilocular sac, with various adhesions, and partial suppuration within the sac. In this case it is remarked, that the general health and constitution continued good up to the period when inflammation of the cyst occurred; the same was observed in Dr. Bennett's

* Edin. Med. and Surg. Journ. April 1846, p. 396.

first case, and this notwithstanding the tumour had become greatly developed, tapping having been found necessary several times. These cases, in conjunction with others, render it very probable that the deterioration of the general health commences with the inflammation and suppuration set up within the sac.

On the subject of *treatment* Dr. Bennett gives as a reason for not hastily having recourse to tapping, that by delaying the operation we promote the natural disposition which the internal cysts exhibit, under pressure, of forming one large sac. This once accomplished, there is no inconsistency in supposing that inflammation produced artificially is capable of effecting a permanent cure, as a spontaneous rupture may. There is every reason to believe that artificial pressure is capable of facilitating the absorption of the walls of the secondary cysts, and their opening into each other; but we possess no means of ascertaining when only one sac is produced. The idea that a dense fibrous envelope, containing numerous secondary cysts, all richly furnished with blood-vessels, can be absorbed through the agency of mercury, iodine, or any other drug, must be purely imaginary. There is not one positive fact to support such an opinion. But the natural course of the secondary cysts being to open into each other, until one large cyst remains,—a rupture, by exciting inflammation and destroying the secreting surfaces, or inducing adhesions between them, may cause a radical cure of the disease, cases of which are on record.

6. *Ovariotomy.*—Dr. Bennett and Dr. Handyside record a case of ovarian disease, in which both ovaries were excised, terminating fatally on the seventieth day, by strangulation of the small intestine.* The patient was 20 years of age. There is nothing peculiar in the early history of the case. On the 12th of July Mr. Syme removed five imperial gallons of a yellow-coloured transparent fluid, the last four ounces being viscid, and containing a few yellowish opaque flocculi. The fluid was densely coagulable, and the flocculi examined with the microscope were found not to be composed of lymph, as was at first supposed, but of the cells and granules which characterize the ovarian fluid.

On the 18th the patient was examined by Professor Simpson with his uterine bougie. The fundus of the uterus was raised above the brim of the pelvis, where it was distinctly felt, and Dr. Simpson came to the opinion that the tumour was connected with the left ovary, having a narrow pedicle. The examination was followed by great pain, which is described as "tremendous;" this was relieved by an anodyne. Vomiting and other symptoms set in, but subsided in a few days, under appropriate treatment. The urine became scanty, and the abdomen refilled. On the 7th of August Dr. Duncan removed five gallons and a half of fluid, similar in appearance and chemical qualities to the last. On the 16th of August the fluid in the abdomen was again accumulating, and Dr. Bennett proposed to the acting-surgeons of the infirmary, severally, the operation of ovariotomy, which they declined to perform. On the 2d of September, having taken lodgings and been placed by Dr. Bennett under Dr. Handyside's care, the latter removed about four gallons of fluid, of nearly the same character as on former occasions. The tumour was very moveable, and was distinctly felt, as after former tappings. Dr. Handyside, Dr. Simpson, Dr. Spittal, Mr. Crabbe, and Dr. Bennett held a consultation, and the propriety of ovariotomy was agreed upon. The operation was performed on the 3d of October, by Dr. Handyside.

The incision was of medium length; on opening the abdomen a large quantity of glairy fluid escaped; on observing the tumour *in situ*, its anterior aspect and

* The Edin. Med. and Surg. Journ. April 1, 1846, p. 278.

fundus presented several round smooth-edged apertures, through which some of the glairy fluid was seen to escape. The pedicle of the tumour was found to consist of the left broad ligament of the uterus; the tumour was removed, and the other ovary being found enlarged to the size of a walnut, and containing several small cysts, was removed also; the peritoneum lining the abdominal walls, as well as that covering part of the intestines, was of a red colour, as from congestion or chronic inflammation; but on no part was there any mark of coagulable lymph, and the intestines were natural in appearance. The operation was most carefully performed, and, in particular, the intestines were guarded from exposure and most tenderly treated, and the patient bore the operation well.

The symptoms for several days after the operation were by no means favorable. The pulse rose as high as 160, and was at first full and rather strong, and then small and vibrating; there was acute pain in the abdomen, vomiting, dyspnœa, tormina, tympanitis, restlessness, &c.; but it was not until the tenth that any tenderness was elicited by pressure over the iliac regions, " which was the first symptom of local inflammatory action." Appropriate treatment was adopted. On the tenth and eleventh days the sutures were removed, and union by the first intention was found to have taken place throughout. The pulse got down to 108, and the patient was in many respects better. From this time to the 10th of October the case presented a variable aspect; on that day, when the ligature, still firmly attached, was tightened, three ounces of thick greenish offensive pus flowed from the opening. There were also unequivocal symptoms of pneumonia. In the evening the last ligature suddenly yielded on being firmly and steadily pulled at, the patient at the time crying out that some one had struck her a severe blow on the belly. This was the thirty-sixth day from the operation.

The suppuration and the pulmonary symptoms continued for some days, but on the twenty-ninth the patient was considerably better. On the 1st of November she took what may be called a hearty meal; immediately afterwards she experienced severe griping pains over the whole abdomen, followed by vomiting of the matters taken; the pulse sunk to 80, and tympanitis occurred. A curve of intestine was very prominent, and clear on percussion, and on the following day there was a marked difference between the fulness and distension of the abdomen above the umbilicus, and the flatness and collapse below it. From this time the most severe abdominal symptoms set in, characterized by continual vomiting, pulse 120 to 140, thirst, flushed, febrile, and anxious countenance, great distension of the knuckle of intestine, particularly after spasmodic pains of the abdomen, tenderness on pressure, and scanty discharge of feculent matter after the use of injections.

On the 4th the left leg was swollen as high as the groin, with a slight degree of induration in the course of the femoral vein. Stercoraceous matter was vomited on the 5th, the symptoms went on increasing till the 12th, on which day, being the seventieth after the operation, death took place.

On post-mortem examination adhesions of the pleuræ were found, with emphysema, splenification, and engorgement of various parts of the lungs. In the abdomen the coils of the ileum were more or less adherent to each other, to the mesentery, omentum, and neighbouring parts, by bands of " chronic lymph." Five feet and a half from the cæcum, above and to the left of the umbilicus, the intestine was constricted by a band of lymph, as if a ligature had been tied round it. Above the constriction the gut was distended to about the size of the wrist; below it was collapsed to the size of the little finger; firm and extensive adhesion existed between the surfaces of the abdominal walls, the omentum, and knuckles of intestine; the peritoneum, in several places, was covered with a dense layer of chronic lymph, about an eighth of an

inch in thickness, of a dirty greenish colour, mixed with black pigmentous matter of cartilaginous hardness. A cavity was found, about the size of an orange, between the uterus and rectum, lined throughout by the same dense chronic lymph already spoken of. The anterior surface of the uterus was firmly united to the bladder, and there were various other adhesions. The cavity between the rectum and uterus communicated with the external opening, and was evidently the place where the pus during life had accumulated. An extensive sinus, about the size of the little finger, was also traced among the viscera, terminating in a cul-de-sac, the size of a hen's egg, filled with dirty-yellow, offensive pus. The rectum was inflamed and extensively ulcerated. The left femoral, saphena, and external iliac veins were obstructed, by a coagulum of blood to about three inches below Poupart's ligament.

The tumour, which involved the left ovary, weighed 9½ lbs., and was a highly vascular, multilocular cyst, with ulcerations, varying in size, having smooth and rounded edges on its anterior surface. Some of the internal cysts were full of pus. The right ovary was formed externally of a dense fibrous capsule, and internally of several small cysts. The natural stroma of the organ had entirely disappeared. Dr. Bennett states that the reasons which induced him to urge the performance of the operation were the following:

1st. The youth and good constitution of the patient.

2d. The disease was rendering her life miserable, and she earnestly wished the operation to be performed.

3dly. Death seemed unavoidable at no distant period; at least it could not be anticipated that five gallons of fluid could be removed from the abdomen every three weeks, for any length of time, without injury to the vital powers.

4thly. Extirpation of the tumour appeared to be the only rational means of cure.

Notwithstanding the unsuccessful termination of this case, Dr. Bennett is of opinion that ovariotomy is warrantable when the diagnosis of the tumour is certain, and the other circumstances favorable. Dr. Handyside adds, that there are other conditions necessary, as—that there is no hope of a palliative cure, or of a spontaneous declension in the severity of the urgent symptoms; that there is no coexistent disease which contra-indicates capital operations in general; and that the patient and her relatives, being made acquainted with the danger, urgently requested its performance. Dr. Handyside protests against the indiscriminate performance of the operation; but in such rare cases as the present, and in such only, he is quite ready to repeat it.*

7. *Paracentesis repeated a hundred and twenty-eight times in a Case of Ovarian Dropsy.*—Mr. Kirkpatrick exhibited to the Pathological Society of Dublin the ovaries of a patient who had laboured under ovarian dropsy, and had been tapped 128 times. The operation was performed on an average once every six weeks. Dr. Kirkpatrick removed a large bucketful of fluid forty-seven times. The patient died of an attack of pleuritis, the interval between the last operation and her death being eight weeks.†

Dr. James Carson, of Liverpool, suggests that in a great majority of the cases of ovarian dropsy, an imitation of the process by which the disease was spontaneously cured, in the case recorded by Mr. Eager (Extracts, art. 80), might with advantage be substituted for the formidable operation of ovariotomy.‡ Dr. Carson thinks that the removal of a portion of the cyst, and after a partial evacuation of its contents, the closure of the small orifice into the abdominal cavity, would, without danger, be uniformly followed by the cure of all cases of unilocular ovarian cysts; and that in those cases in which the larger cyst

* Lib. cit. p. 308. † The Dub. Hosp. Gaz. Feb. 1, 1846, p. 187.

‡ Prov. Med. and Surg. Journ., Feb. 25, 1846, p. 88.

coexists with one or more smaller cysts, the comparative innocuousness of the operation might justify its repetition in the event of the subsequent development of these smaller cysts. Dr. Carson believes that in the numerous instances in which the operation of tapping has been followed by a radical cure, the effect was the result of the process by which Mr. Eager's patient recovered, and several very apposite cases are cited by way of proof.

When the contents of the cyst are of such a nature that their evacuation into the peritoneal cavity would necessarily be attended by fatal peritonitis, the old method, practised a century ago by Houston in this country, and Le Dran and others in France, might be advantageously adopted. After making an incision into the parietes of the abdominal cavity, and puncturing the walls of the sac with a trocar, the aperture in the sac was enlarged by a bistoury; the contents of the cyst, in some instances almost solid, were removed; the edges of the aperture of the sac were connected with the aperture in the abdominal cavity, and the fistulous cavity thus resulting was treated like an abscess. The apparently rude treatment borne by the patient in these cases, without constitutional symptoms, was probably owing to the low degree of vascularity of the tumour, and a corresponding degree of development of the organic nerves. Surgeons, it is remarked, have been misled upon this subject, by the supposition that there is a close analogy between the lining membrane of the sac and the serous membranes of the body. Dr. Carson's attention was drawn to the subject by a case which proved fatal after ovariotomy, at which operation he was present and assisted.

8. *Thrombus, or Sanguineous Tumours of the Vulva.*—In an article by Velpeau, it is stated that these tumours sometimes develop themselves very rapidly, within a few hours for instance, and are of very frequent occurrence (M. Velpeau having seen as many as thirty cases), and that they usually arise from external injuries, as blows. The affection may occur in women at any period of life, married or single. It arises from a rupture of vessels, without an external wound in the integuments, and is sometimes produced by injury received during coitus, or by the pressure of the head of the fœtus against the labium in traversing the inferior strait of the pelvis. The effused blood may be absorbed and the tumour resolve itself, or the fluid parts of the blood may be absorbed, leaving the clot as a concrete tumour; sometimes the concrete part disappears, the fluid increasing, and forming a cyst filled with pultaceous matter; in other cases it inflames and is transformed into a true sanguineous abscess. The treatment depends upon the size of the tumour, whether there is a solution of the continuity of the skin or not, and upon the existence of inflammation. Simple infiltration of the labium does not require any particular care, it disperses itself like a thrombus in any other part of the body, by the most simple treatment. When a kind of cyst is formed, the indication is to puncture it and press the fluid into the neighbouring tissues, or to crush without puncturing the cyst; but where, from the volume of these tumours, or other causes, resolution is not practicable, incision is the proper remedy. M. Velpeau has met with cases which absolutely required this treatment; hemorrhage is not at all likely to occur from the thrombus; in more than twenty cases treated by puncture, hemorrhage has never occurred. When this has happened in the hands of others, it has probably been produced by a continuation of bleeding from the original disease, and when it occurs it is easily arrested by compression. A free incision should be made, otherwise it will very incompletely fulfil the indication, for which it is resorted to, of emptying completely the cavity of the cyst. The cyst should then be washed out freely with water and filled with charpie. The incision should be made at the most projecting and thinnest part of the tumour. But when the walls

are thick it should be made at the junction between the external integument and the labium, rather than on the inside of the latter and near the vagina. This affection is sometimes an impediment to labour, and requires on that account to be treated promptly. Thrombus of the labium is frequently confounded with sanguineous tumours of the vagina, occurring exclusively during parturition or shortly afterwards, of which M. Deneux has collected many examples.*

9. *Sterility.*—Professor Osiander, of Gottingen,† believes that in many cases which have come under his notice, sterility was owing to elongation of the cervix uteri, too pointed a form of the anterior lip, and improper direction of the os uteri. This, the Professor remarks, more especially deserves attention, since it belongs to those causes of sterility which may be remedied, if the female, during the sexual act, be placed in the proper position (on her face).

10. *Prolapsus Uteri.*—For the radical cure of this affection two principal methods are described in Dieffenbach's 'Operative Surgery.' ‡

*a. Elytrorraphie;* the production of an artificial stricture of the vagina, by excision of the mucous membrane. An elliptical portion, three inches long by two broad, the points of which are above and behind, and below and before, is removed from each side of the vagina. If the parts are very lax a small segment may be removed from the anterior wall, but generally this is avoided, on account of the danger of wounding the bladder, and it is better to employ cauterization subsequently, if necessary. After the incisions the edges of the wounds are brought together by sutures and the uterus replaced, the parts cleansed, and the vagina plugged with charpie. The sutures are removed when the speculum shows that union has taken place; but even if union by the first intention does not follow, and the wounds suppurate, nothing is lost, as the prolapsus is often better supported after healing by granulation and cicatrization than if the wounds had at once united.

*b.* A second method consists in paring long strips of mucous membrane for the purpose of producing strong superficial cicatrices.

After these operations the patient is kept recumbent, that the falling uterus may not interfere with the wounded parts; the catheter is at first kept in the bladder, and mild enemata are administered. Cold applications are apt to bring on erysipelatous inflammation, or to retard, and render the granulatory process torpid. Injections of warm camomile tea are useful, and after some time charpie or sponge, moistened with red wine, may be kept in the vagina, and lastly, alum and other astringent lotions may be used.

Dieffenbach prefers cauterization to either of these processes, because relapses are apt to follow. When the parts are so large that the uterus immediately falls on the patient standing erect, six lines of cauterization with a conical iron, passed slowly from the internal surface of the labia to the neck of the uterus are required. If the parts are less lax three or four lines are sufficient. The parts are afterwards covered with cotton wadding, and the separation of the sloughs waited for; a mild ointment spread upon charpie is then applied, and when the swelling goes down the uterus is replaced. When the uterus prolapses only after long standing, or walking, or on going to stool, it is better to apply the iron by means of a speculum, than to draw the uterus down, as in the method just described. Cotton wool is introduced, after some days it is removed, warm milk or barley water is injected, and cicatrization is assisted by the subsequent injection of lead lotion.

The results of cauterization are most satisfactory; Dieffenbach has cured a

* Journ. de Chirurg. Mars 1846, p 65. † The Northern Jour. of Med. Jan. 1846.
‡ The Brit. and For. Med. Rev. April 1846, p. 326.

great number of cases, and enabled the sufferers to dispense with pessaries. Some of these persons after the cure conceived, and their labours were unattended with difficulty. In one case, after labour, the uterus again sunk, and a second slight cauterization was required. It is much more safe than any of the cutting operations, and the iron is far preferable to caustics, which either do not take effect to a sufficient depth, or destroy the parts to an extent which is not desired.

Fricke has employed the method of *episiorraphie*—adhesion of the labia caused by paring their edges and uniting by suture. It is a palliative rather than a radical cure, preventing prolapse externally. Redivision has been found necessary, in consequence of conception taking place.

11. *Ablation of the Womb for Prolapsus and Inversion.—Six cases.*—A case of ablation of the womb is given in our Extracts (art. 81, p. 148). A second instance in which this operation has been performed with success is described also in the 'Archives de Médecine,'* from the American journals. A woman, aged 32, after her first confinement, was affected with a tumour which was mistaken for a polypus, and a ligature applied, which produced such alarming symptoms that it had to be removed. Dr. Esselmann, of Nashville, was consulted, and found her in a deplorable condition, with hectic fever, night sweats, and incessant cough; the symptoms announcing a rapidly fatal termination. On examining per vaginam, a tumour was found the size of a pear, answering to the description given by authors of a polypus of the uterus. The vagina was very irritable and ulcerated, so that it was difficult to make a minute and detailed examination. Convinced that it was really a polypus, Dr. Esselmann determined to resort to the ligature, the moment this was applied it produced the most violent pains, during the first four or five hours the patient was prostrate, and the pulse became nearly filiform; yet reaction occurred, and she slept well on the night following the operation. The ligature was tightened every morning for eighteen days, when the tumour fell off, and to the great surprise of the physician, instead of a polypus he found the uterus itself, much diminished in size by the ulceration, and especially by the constriction which it had undergone. The vagina was ulcerated and furnished a fetid discharge, which disappeared under cauterization with nitrate of silver and injections of chloride of lime. The vital powers of the patient were sustained by tonics and animal nourishment. Her recovery was not rapid, she could not leave her bed for some months after the operation, yet finally she got quite well. During the first twelve months after the ablation of the uterus loss of blood was frequently found to be necessary, in consequence of headache, vertigo, and other indications of plethora.

Another case of the same kind, by Dr. Toogood, will be found in the same journal, and was followed by a successful result. A large tumour projected from the vagina in a woman about forty years old—it was the womb in a state of complete prolapse, hanging between the thighs; reduction was easily effected, and the organ was kept in place with a large globular pessary, which the patient was recommended to remove from time to time, and to replace immediately. During three years no more was heard of her, after which Dr. Toogood was consulted for an abundant fetid vaginal discharge, which had existed for some time. The pessary had never been removed, but was the cause of this symptom, and was easily extracted from the vagina. After this, as Dr. Toogood ultimately ascertained, the pessary was never replaced, so that the uterus frequently projected through the genital parts. The patient was in the habit of reducing it by pressure with the finger, when all at once

* Gazette des Hôpitaux, Feb. 12, 1846.

on the 13th of April, it came down, and every effort she could make was insufficient to accomplish its reduction.

She consulted Dr. Parsons, who found a pyriform tumour seven or eight inches long, insensible to the touch, of a reddish colour, ulcerated and ecchymosed at certain points, in consequence of the attempts which had been made to reduce it, and bleeding readily when touched. His own efforts at reduction were not more successful than those which the patient had made, and bleeding and cold applications were equally futile, accordingly Dr. Parsons and Dr. Toogood agreed that it was a fair opportunity, and might be useful to extirpate the uterus.

On the 22d of April a ligature was applied on the vagina, immediately above the uterus, and the tumour at once separated on the distal side of the ligature. It weighed more than two pounds, the uterine cavity was obliterated, and the os uteri was almost cartilaginous. The cure was complete, the vagina terminating in a cul-de-sac at a small distance from the vulva.*

The fourth case is that of a woman, aged 22 years, delivered of her first child thirteen months previously, and the delivery followed by violent pain and considerable hemorrhage; the latter had never entirely ceased, and her continual sufferings resisted all treatment.† M. Michalowski found a pyriform tumour in the vagina, very sensible to pressure, which he first took for a polypus, and employed astringents and cauterization with the acid nitrate of mercury, but on a more attentive examination he found it was an *inverted uterus*. He found that the blood came more particularly from two regular openings, opposite each other, and corresponding exactly to the situation of the Fallopian tubes. The debility of the patient being extreme and death imminent, it was resolved to remove the tumour. Some hours after a small bleeding, resorted to for the purpose of diminishing the flux towards the uterus, the tumour was drawn outside the vulva with Museaux's forceps, and the section rapidly effected with a pair of curved scissors. There was but little pain and scarcely any hemorrhage. The pulse, previously 120, fell to half that number a few hours afterwards. Sense of cold in the lower part of the abdomen was with difficulty removed by warm applications, and did not pass off till the next day, when the pulse rose again, but descended gradually till the eighth day, when nourishment and a change of bed was permitted, and in fifteen days the patient went into the country. Six months afterwards the patient was examined and found to be quite well, except some vague pains in the kidneys and breasts. The fragment of the neck of the uterus was completely cicatrized. The portion separated, having been divided longitudinally after the operation, presented in its remarkably small anormal cavity, the folds of the serous membrane puckered up.

M. Michalowski justifies the operation thus:—1st. The incision through the parenchyma of the neck of the uterus, like the application of irritants to this part, is but slightly painful. 2d. The inversion and strangulation of the uterus must have compressed the vessels so as to prevent dangerous hemorrhage, at the same time that the space to be incised was much diminished. 3d. As to the almost invariable want of success of operations on the womb, it depends in general upon metritis, but the uterus being cut away, metritis is no longer to be feared.

On the subject of the successful removal by ligature of an inverted womb, recently published by Dr. M'Clintock (Abstract, vol. i, p. 141), and which may be mentioned as a fifth case, the editor of the 'Gazette Médicale' asks, why not have tried in the first place to obtain the reduction of the organ? of

* Gazette des Hôpitaux, Feb. 12, 1846. † Gaz. Méd, Oct. 18, 1845.

which many fortunate examples have been recorded, the disease being equally inveterate. And with respect to the diagnosis in the above case, it may be asked, whether, after all, the disease was not a polypus? There might have been a serous cavity within the tumour, but this is not sufficient to establish an inversion of the uterus, since both Richerand and Cloquet have observed cavities of this kind within polypi that had been extirpated; and the editor further remarks, that it is greatly to be hoped that no one will imitate the example of the operator in a similar case, without making it, in the first place, quite certain that it is impossible to effect a cure by any other means. Again, an operation decided upon, the ligature should be preferred to excision.

The sixth case has been already given in our first volume, p. 140. The uterus had been dragged down by an enormous polypus, and the whole was excised, the patient dying on the fifth day. Thus, of the six cases reported as ablations of the womb, five terminated in perfect recovery, and one in death.

## § II.—*Diseases of Pregnancy.—Labour.—The Puerperal State.*

12. *Pregnancy occurring while Nursing, and with Menstruation.*—Dr. Duke, of Towcester, describes the case of a woman who supposed she was not pregnant up to the night of her miscarriage, having regularly menstruated, and during the whole time suckling an infant then 16 months old. The woman stated that the child was born alive, and lived a few seconds; it was nine inches long. Dr. Duke was himself aware of her being pregnant, and nursing, and he had no reason to doubt her having menstruated, which she positively affirmed.*

13. *Induction of Premature Delivery.*—From the year 1834 to the year 1841, Dr. Seulen performed this operation thirteen times, in seven subjects, and invariably with success to the mother. Seven of the infants only were born living; some of the remainder were not viable; and the others died during labour. In three of the women the pelvis was deformed from rickets, and in the other four from osteomalacia.†

14. *Superfœtation.* Dr. Alexander Cunningham, in a letter to Professor Dunglison, mentions an extraordinary circumstance.‡

A negro woman, about 45, after having given birth to thirteen children during her life, none of which were twins, was, during the last spring, safely delivered of two at one birth, one being *black* and the other *white*. Dr. Cunningham saw them when they were a few weeks old, and the contrast in colour, hair, &c., was most striking, so much so that four fifths of those who examined them were of opinion that the negro was not the mother of both, that some deception was being played; but the mother persisted, and still declares them to be her own. That a black woman may give birth, at one time, to a *black* child and a *mulatto*, although extremely rare, Dr. Cunningham believes; but a case like the present is a phenomenon as inexplicable as, if true, it is interesting.

In a discussion at the Royal Medico-Chirurgical Society, Mr. Streeter stated, in reference to this subject, that the size of a fœtus affords no evidence of its age. In a case of twins, published by Dr. Guy, and attended by himself, in which both were born alive, and yet one weighed just as much again as the other, a common chorion inclosed both, proving their simultaneous conception.§

* The Dublin Med. Press, Jan. 14, 1846. † Neue Zeits. für Gebürtskunde, t. xiv, f. 2, 1844. ‡ The Med. Exam. Nov. 1845, p. 647. § London Med. Gaz. Dec. 1845, p. 1394.

15. *Extra-Uterine Fœtation.*—Our two former volumes contain references to five cases—all fatal. Another case is described by Mr. Davies, of the Loughborough Dispensary, in which the woman died, worn out by the decomposition of the fœtus within the abdomen.* But a case in which the result was more happy is recorded by Dr. M. M'Culloch,† lecturer on Midwifery, Montreal, in which a putrid child, of the ordinary size, was removed by incision in the third year of "pregnancy." An effort at expulsion had been previously made by nature through an opening at the umbilicus. The fœtus was found in a sac that had formed adhesions to the walls of the abdomen all round, and appeared to be the Fallopian tube enormously distended and thickened, containing, besides the child, a quantity of fetid matter. No vestige of a placenta remained. The patient's recovery rapidly progressed from a state of extreme prostration to perfect health.

Four varieties of extra-uterine fœtation have been recognized by systematic writers—the ovarian, tubal, abdominal, and interstitial; if the case in our extracts, from a Danish journal, (art. 70,) is to be depended upon, it would appear that the development of the fœtus may proceed in other situations, and that another variety, "the vaginal," may be added to the number.

16. *Multifœtation.*—A case of triplets was communicated by Dr. Merriman, from W. Pretty, Esq., to the Royal Medico-Chirurgical Society.‡ The patient had completed the seventh month of her first pregnancy. There were two placentæ—a single and a double one, and two membranous sacs. The two smallest fœtuses weighed respectively four and seven ounces; the third child was born alive, and weighed three pounds eight ounces. In the discussion which ensued, Dr. Gregory remarked that a woman who had twins once, often had them a second, and even a third time, of which he had collected the following instances:

1. A Dutch lady at the Cape of Good Hope had seven children at three births—twice twins and once triplets. 2. A lady (Mrs. G.) of Higham, Norfolk, had five children in eleven months. 3. A lady, residing in Suffolk, had twins three times. She had six children in three years, all of whom lived and did well. 4. A near relation of Dr. Gregory, residing at Charing, Kent, had four children in twelve months. One set of twins were born in April, the other in March of the following year.

These facts tend to confirm the opinion of Dewees and others, that preternatural fecundity is in some instances constitutional. A woman has been known to bring forth twins five times, never having had a child singly.

Mr. Hooper also records an instance of a woman. aged 30, who in her third pregnancy gave birth to three children. The first was expelled with vertex presentation, afterwards its placenta, next an entire ovum, and then another entire ovum. They were all males and born alive, and the woman did well;§ and Dr. Beattie mentions a case of four children born of one mother, the first at ten o'clock at night; fourteen hours afterwards a second appeared; in an hour after this a monster came forth; and again, in an hour after that, a fourth, being the third living child, was born.‖

17. *Expulsion of the Ovum entire.*—An interesting case is introduced from the 'Lancet' into our Extracts (art. 68), and in a subsequent number of the same journal Mr. T. Torrance mentions having attended a woman who, after the delivery of one child, gave birth, by one expulsive effort, to a second, enveloped in the membranes, together with both placentæ attached. The second child survived only a few days. A second case also occurred to the

* Lancet, Dec. 13, 1845, p. 646. † The Brit. Amer. Journ. of Med. and Phys. Science. ‡ The London Med. Gaz. Dec. 1845, p. 1392. § Lancet, Jan. 3, 1846, p. 27. ‖ The Dublin Med. Press, Dec. 10, 1845.

same gentleman, in which a second child was expelled, inclosed in the membranes, with both placentæ attached. Mr. Torrance remarks, that in twin cases he believes the occurrence is not at all rare at the full period of gestation, but he has never met with it in cases of single births at the full period, although frequent at the seventh month, particularly when the child is dead.*

Another case occurred to Dr. Mackness, of Hastings.† This also was a case of twins, and claims consideration—1, from the length of time which elapsed from the expulsion of the ova and the doctor's arrival at the house; 2, from the success which resulted from persevering efforts employed to arouse the vital powers of the infant; 3, from the absence of flooding after the expulsion of the ova. On his arrival Dr. Mackness was informed that the labour was over, and on making an examination he found an entire ovum. He broke the membranes, tied the cord, and gave the child to the attendant, when, to his surprise, he found another ovum, also entire, from which he extracted another infant. Both infants appeared to be still-born, but by inflating the lungs, dashing cold water over their bodies, wiping them dry, and having their skins well rubbed, in about a quarter of an hour or twenty minutes both showed signs of animation, and on exposure to warmth cried out very lustily. There was no hemorrhage, and the placenta of each child was separate. The period of ten or fifteen minutes was alleged to have passed from the expulsion of the ova to the time of Dr. Mackness's arrival, and from collateral circumstances he does not think this was much exaggerated.

18. *Four Cases of the Cæsarean Section.*—Dr. Long, surgeon to the Civil Hospital, Toulon, describes a case‡ in which this operation was performed in consequence of a deformity of the pelvis. Everything went on satisfactorily for thirteen days, after which very unpleasant and even threatening symptoms supervened, manifestly from the bowels having been allowed to become constipated. Large doses of calomel and castor-oil corrected this, and the mother and child did well. Thirty-six days after the operation the former was able to follow her usual occupations. Dr. Radford, of Manchester, and Mr. Goodman, of Salford, have also lately performed this operation successfully in a female labouring under distortion from mollities ossium. The child was removed living.§

Two cases are detailed by Dr. Bresciani de Borsa,‖ in which the author performed this operation; the one terminating successfully as regards mother and child, the other being followed by death to the parent. The author was called to the first of these, Angelina de Mori, ætat. 20, 4th July, 1844. Severe labour-pains had existed for two days, and had now become so violent as to threaten rupture of the uterus. The pelvis was much disturbed by rickets, tilting the fundus uteri over the edge of the right ileum, and abridging the aperture, so as to render the passage of an unmutilated child impossible. The obliquity of the uterus, indeed, was such that the author believes it alone would have justified the operation. The child being still alive, embryotomy, even if practicable, would have been, according to the morals and religion prevalent in Italy, inexcusable. The operation was completed in two minutes, and the wound in the parietes brought together by five or six sutures. By the 21st, the wound had quite cicatrized, notwithstanding peritonitis, requiring bleeding, &c., had supervened upon the operation, and the woman being subsequently thrown into febrile action by severe fright. An attack of phlegmasia dolens next came on, and as soon as she had recovered from this, the house in which she resided took fire, and she was carried through the flames on the forty-third day after the operation. Notwithstanding all this she got well.

* Lancet, Dec. 6, 1845. † Ibid. Feb. 14, 1846. ‡ Gaz. Méd. Sept. 1845.
§ London Med. Gaz. Dec. 1845. ‖ Medico-Chirurg. Rev. April 1846.

The second case occurred in a dwarf woman, 32 years of age. The description given of her deformed person is such that one is surprised how any human being could have had connexion with her. Her pelvis resembled that of a child, its antero-posterior diameter not exceeding an inch and a half. A live child was speedily extracted. The poor creature bore the operation with heroic fortitude. "During its continuance she kept her face covered, and from her utter silence seemed as if dead; but as soon as it was completed, a crooked arm was stretched out from beneath the clothes towards the operator, and she was heard to say, 'Doctor, now you have finished the operation, *pray give me a pinch of snuff.*'" Had Dr. Breschiani de Borsa, and many others, not been present at this exhibition of Spartan firmness, it could never have been believed; and yet the fact is indubitable. She died a week after the operation, during a recurrence of a broncho-pneumonia, to which she had been subject at intervals for some months. On examination after death no inflammation of the uterus, peritoneum, or abdominal viscera was discovered. Thus three of the mothers recovered and one died, and three at least of the children were extracted living, in the four cases of Cæsarean section here referred to; another fatal case is recorded in our Extracts (art. 84).

As might be expected in a country where the power of the Catholic church is so predominant, Dr. Borsa does not hesitate to recommend the Cæsarean section as a preferable procedure to the destruction of a living child. The reviewer remarks,* "We are pleased to find that, even in that part of the world, the *induction of premature labour* at the seventh month has become a recognized operation." Two cases are related in these essays in which it was practised; one on account of the presence of convulsions and coma, and the other in consequence of the contracted state of the pelvis. In both the membranes were punctured, and the labour-pains commenced in an hour afterwards.

In the Medico-Pharmaceutial Review of Barcelona there is a case by D. Thomas de Corral y Ona, clinical professor of midwifery at Madrid, in which what is termed a "vaginal Cæsarean operation" was successfully performed. During the second labour of a woman aged 29 years, the pains being strong and expulsive, it was ascertained that the head had cleared the superior strait, and penetrated into the pelvic cavity, but the orifice of the uterus could not be detected. Where the os uteri should have been, hardened cicatrices only could be felt. On the most rigid scientific examination, it was ascertained—1. That there was a complete obliteration of the orifice of the uterus. 2. That the absence of the orifice could not be referred to obliquity. 3. That the occlusion depended solely upon adhesions of the sides of the os uteri. 4. That the position of the head was occipito-anterior. 5. That the occlusion was the sole obstacle to the termination of the labour. 6. That in consequence of the thickness of the uterine walls, which presented a large protuberance at the site of the os uteri, the occlusion could only be overcome by vaginal hysterotomy.

The operation being determined upon, and the patient placed in the usual position for great obstetrical operations, an assistant introduced the index and middle finger of the right hand into the vagina, with the palmar face above and before, so as to bear up the anterior part of the fœtal prominence, and to raise at the same time the fundus of the bladder. The operator carried the index and middle finger of the left hand with the palmar surface turned downwards and backwards, and applied it to the posterior part of the thickened eminence at the junction of the vagina and uterus, so as to protect the bladder, rectum, and the junction of the vagina and uterus. The four fingers, placed as thus described, circumscribed a space of about an inch on

* Nouvelle Encyclographie, Jan. 1846, p. 224.

the most projecting part of the tumour. With a convex bistoury, properly protected, an opening was made in the limited space at the site of the os uteri, cutting carefully from without inwards, and exploring with the left index finger as quickly and as carefully as possible, so as to avoid injuring the fœtal head, which was closely pressed behind the uterine walls. The incision was six lines long, through a uterus from two and a half to three lines thick. A straight-armed bistoury was then employed, and turning the blade to the left, an incision was made from two inches and a half to three inches. The operation was then considered complete, and the efforts of nature expected with confidence. The pains became stronger, and returned quicker, and soon after the vertex and membranes presenting, the artificial opening gradually enlarged; after the expiration of an hour the membranes broke, and in two hours and a half the labour terminated, fortunately without any considerable hemorrhage, but with an incomplete rupture of the perineum.

The child was asphyxiated, but recovered by appropriate treatment. The artificial opening fulfilled the functions of the os uteri in allowing the lochia to discharge itself; two days after the operation it was, as it were, puckered, its diameter transversely being an inch and a half, and antero-posteriorly rather less; subsequently it became smaller, and assumed, imperfectly, the form of the os uteri, being pervious, and easily admitting the index finger; beyond the opening of the artificial orifice the finger traversed a narrow space about half an inch long, which represented a kind of accidental cervix.

Means were employed to prevent this opening becoming obliterated.

Although Denman and Velpeau affirm that cases of obliquity of the cervix uteri have been mistaken for occlusion of the os tincæ, there certainly exist authentic records of the latter occurrence, not only during gestation, and at the period of parturition, but also independently of these conditions of the uterus.

Gautier successfully performed the operation of vaginal hysterotomy in a case of complete obliteration, the uterus being very near the inferior strait.

Velpeau himself recites an observation by M. Caffe, the details of which had considerable analogy with those of the present case.

Lobstein and Berger have performed successfully the vaginal Cæsarean operation in cases of absence of the os uteri.

In the 'Bulletin de Médecine' of the present month (March), a case is mentioned in which the operation was performed by Don Antonio del Campo et Clanos.

19. *Tumours in the Pelvis, obstructing Delivery.*—A case is given in our Extracts (art. 84), in which the Cæsarean operation was unsuccessfully performed by Mr. W. Lyon. The same gentleman has appended remarks on the general subject* of tumours obstructing delivery. In a majority of cases they are dependent on cysts having fluid or soft contents; still the diagnosis is difficult, and they are often mistaken for solid tumours. In Mr. Lyon's case the tumour was seated *behind* the rectum, an unusual, if not unique, situation for an enlarged ovarium, increasing the probability which the osseous hardness, immobility, and other conditions gave of its being a solid tumour. For the purpose of *elevating* a prolapsed ovarium into the abdomen, Mr. Lyon remarks that the best method would be to place the patient on her knees and elbows, so as to relax the abdominal muscles, and permit the uterus and child to gravitate downwards; then to make pressure in the absence of a pain on the presenting part, so as to raise it above the brim, while, with the fingers of the other hand, or with the whole hand introduced into the vagina, or rectum, the

* The London and Edin. Monthly Journal, Dec. 1845, p. 891.

tumour is grasped and pushed upwards, forwards, and downwards, so as to dislodge it from the pelvis. But no effort in his own case was of any avail in accomplishing this object. When a tumour contains soft or fluid contents, cannot be elevated, and suffers such an amount of pressure as to endanger laceration and the escape of its contents into the peritoneal sac, Mr. Lyon thinks that the risk of this should be avoided by *puncture* from the vagina or rectum, by means of a trocar and canula, which, next to elevation, is the speediest and easiest mode of terminating the labour; and even should it only partially reduce the bulk of the tumour, it will permit the application of the forceps, if otherwise deemed admissible; a dangerous practice, while we are ignorant of the exact nature of the contents.

In consequence of the deceptive feeling, leading to the belief of such tumours being solid when they partially contain soft matter, Mr. Lyon considers it ought to be an established maxim in every case of the kind, if the tumour cannot be elevated, as the only *sure mode of diagnosis*, and when it contains fluid, as an easy means of effecting delivery, to puncture with a trocar and canula; and although this precept differs from his practice in the case before us, he inculcates it in consequence of the contrast between the feeling communicated during life and the appearances revealed on inspection, as well as on the testimony of others, as to the impossibility of correctly distinguishing such tumours with soft or fluid contents, from those which are entirely or partially solid. The practice, if not useful, can seldom of itself prove injurious, and may obviate all future difficulty.

Puncture is made from the vagina or rectum, there being little preference of the one canal over the other; this may be decided by the part of the tumour which is thinnest and softest, and where the puncture would be easiest made. If the tumour is *partially* evacuated of any other fluid except *pus*, elevation should be again tried. Where puncture does not give exit to all or to any of the contents, the canula, and it may be the trocar too, should be reintroduced, moved about to ascertain the consistence, and, as far as possible, the structure of the tumour, and with a similar view, should be used in such a manner as, if possible, to fill it with the contents, for the purpose of being carefully examined when withdrawn.

In an instance which occurred in Glasgow, puncture having failed to give exit to any fluid, or to afford any precise information, and a continuation of the labour for several hours having had no effect in emptying the tumour, the puncture was dilated with the finger, and a quantity of lardaceous matter removed, the head broken down, and the child extracted; but the patient had a copious purulent discharge through the vagina, from the seat of the tumour, and died some weeks after the operation.

Mr. Lyon remarks, that in his case, inasmuch as he supposed the tumour solid, his diagnosis was incorrect, and that it is nearly certain that all practitioners are likely to be mistaken, who trust, in similar cases, to any means of diagnosis short of exploration by puncture; and he suggests that when precise information is not obtained, other safe measures for the mother and child being impracticable, a free *incision* through the rectum or vagina, into the tumour, may be made, so as to permit the entrance of the finger, or of a scoop, to remove its contents.

The best mode of performing incision of the tumour would be to introduce two fingers, or a speculum vaginæ, into the rectum or vagina, and with a knife, cutting at the point, and an inch or so from it, and slid along the fingers, or within the speculum, to incise the part of the bowel or vagina upon which the tumour rests, cutting through the two layers of peritoneum, and the cyst, to the extent of a couple of inches towards the floor of the pelvis. The fingers

could then be introduced for the removal of the contents of the tumour, or the action of the uterus might be trusted to.

If a tumour happens to be an ovarium affected with malignant disease, so far as the mother is concerned, it would signify little whether it were emptied or the Cæsarean operation had recourse to. By the former, hemorrhage might at once destroy her; from the latter recovery would be nearly hopeless; but there would be greater risk of the death of the child by hemorrhage from the mother, and the delayed delivery, in scooping out the tumour, than by the Cæsarean section. The one or other plan should be adopted, according to the specialities of the particular case, and with relation to the life of the child. Mr. Lyon is not aware that the incision of the prolapsed ovarium has been practised more than once in a successful case by Mr. Park. He recapitulates all its dangers, but with these before him concludes that there must be more hope from incision than from *excision* of the ovarium, or the only other alternative, the Cæsarean section. The formidable operation of excising a prolapsed ovarium, during labour, as proposed by Dr. Merriman, having never been attempted, there is no means of comparing its relative degree of safety with that of the Cæsarean section; and Mr. Lyon thinks that notwithstanding the favorable results lately obtained by ovariotomy, the complications and difficulties of the latter, under the circumstances before us, renders it next to certain, that the chances are more promising to the mother by adopting the Cæsarean section than by the proposal of Dr. Merriman.

Dr. Lever,* in a clinical lecture, has referred to cases recorded by himself, in which labour was promoted by a puncture with a common lancet guarded. Respecting a case which occurred in July last, he states that labour was obstructed by a tumour in the recto-vaginal septum. The patient, before the commencement of her pregnancy, had noticed a tumour on her left side, which was moveable, unattended with pain or inconvenience. She suffered but little during her pregnancy, but noticed that the child was situated more on the right side. Labour commenced on Wednesday afternoon, and at eleven on the Thursday morning Dr. Lever was called in. He found the head of the child arrested by a tumour of a large size, situated between the vagina and rectum, extending upwards and to the left side of the pelvis, and affording distinct fluctuation. The vaginal aspect of the tumour was covered by numerous arteries; the posterior wall, as felt through the rectum, was thin, and there fluctuation could be more readily detected. A guarded lancet was introduced, "per rectum," and upwards of two pints of a straw-coloured fluid were evacuated. Within ten minutes from the emptying of the cyst a living child was expelled. Dr. Lever remarks, some difference of opinion exists as to the part in which the puncture should be made. Some prefer making an opening through the vagina, while others direct that the cyst should be punctured "per rectum." There is no doubt that when the tumour is opened through the vagina, a greater facility is given to a more complete evacuation of its contents; but if the vaginal puncture do not heal, there is danger lest the lochia pass into the cyst, and then excite inflammation and irritative fever. In this case Dr. Lever chose to operate "per rectum," for two reasons: in the first place, the tumour was more distinctly felt, its walls were thin, and fluctuation was obvious; and secondly, the vaginal parietes were more dense, and were traversed by numerous large blood-vessels.

20. *Pregnancy and Delivery during complete Prolapsus of the Uterus.*—In the 'Bull. delle Sc. Med. di Bologna' is recorded the case of a female, who first suffered from prolapsus of the uterus in her 15th year; in her 22d year

* The London Med. Gaz. Nov. 1845.

she became pregnant, and her pregnancy proceeded to the seventh month, without any particular inconvenience. In the seventh month the uterus began to sink, and in the commencement of the eighth month it projected as much as six fingers' breadth beyond the vulva. The author was not called until the patient had been four days in labour. When he arrived he found the woman much exhausted, and the organ, of a dark-brown colour, hanging as low down as the middle third of the thigh. Labour proceeded in the usual way; the child was extracted with forceps; and on the twentieth day the woman was able to leave her bed.

21. *Imperfect Condition of the Os Uteri, with Malformation of the Vagina. Treatment during Labour.*—Mr. S. Hullett Davis records a case,* not of occlusion, but of an imperfect condition of the os uteri, with malformation of the vagina, producing difficult labour, for which it was deemed necessary to make an incision. On placing the patient on her back, separating the thighs, and opening the vagina with the fingers, the upper part was not more than two inches from the vulva, and a small aperture large enough to admit a crow's quill, having the appearance of a circular hole made with a punch, was seen, and through it the hairy scalp of the fœtus.

A director, bent at an obtuse angle, was introduced into the uterus, and passed directly backwards, in which direction an incision nearly an inch in length was made with a probe-pointed bistoury, a catheter having been introduced into the urethra; the cutting edge of the bistoury was turned forwards and an incision made to the extent of a quarter of an inch. The structure divided was of a firm texture, a quarter of an inch in thickness.

About three hours after the operation the pains continued strong; the os uteri was dilated to the size of a crown-piece, the margin thin, and of a natural feel; but a longitudinal band, extending along the posterior wall, was still firm and resisting. Five hours and a half subsequently the pains continued very powerful, but symptoms of threatened exhaustion came on. The head was low down in the pelvis, the swollen scalp, in the form of a cone, pressing on the os uteri, which was much more dilated; but six distinct, firm, and unyielding bands were observed taking a short course from the vagina to the os uteri, as if formed by puckering of the vagina, one on each side of the urethra, two laterally and two posteriorly, much stronger than the others; the bands became very tense during a pain.

Each of these bands was divided, and a little additional room obtained, but still the head did not make progress during the very powerful pains, being obstructed partly by the approximation of the rami of the pubes, but chiefly by the malformation of the soft parts.

Dreading rupture of the uterus, and the patient being more exhausted, it was decided to open the cranium of the fœtus, and endeavour to deliver at once, which was easily effected without laceration or hemorrhage, the uterus contracting firmly, and the patient recovered without a bad symptom.

On examination after recovery, an inch within the vagina a distinct and firmly resisting ring was observed, and within this the os uteri flattened, not protruding into the vagina, and of an irregular form; from the left margin of the os uteri, extending between it and the ring, was a firm, thickened band, resembling somewhat the contracted cicatrix of a burn, and a second band took its course along the posterior wall of the vagina.

22. *Rupture of the Uterus.*—A fatal case in the practice of Mr. Tyte, of Harrow, is recorded in 'The Lancet.'† The labour had proceeded regularly for several hours, the head advanced, and had begun slightly to dilate the

* The London Med. Gaz. March 1846, p. 500. † Feb. 7, 1846, p. 153.

perineum; after a very strong pain a complete cessation of uterine action took place, and the patient complained of severe pain over the lower part of the abdomen; labour-pains did not recur, but vomiting supervened; the head receded in some degree. An opiate was given which procured between three and four hours' sleep, quite free from pain. After some hours, slight pains came on, with the effect of advancing the head in a trifling degree; these, however, soon ceased, and the pulse began to flag. An attempt was made to deliver with the vectis, but failed from the frequent recession of the head; the forceps were then used, but unsuccessfully, and finally the head was perforated, and the chest and abdomen eviscerated. The operation lasted four hours, which the patient bore well, but she died exhausted a few hours afterwards. On *post-mortem* examination, a transverse rupture of the uterus, to the extent of upwards of four inches, was discovered in the anterior part of the cervix, near its junction with the vagina. There was intense inflammation of the peritoneum throughout. The labour had lasted nine hours, and the membranes had been ruptured six hours when the accident occurred. There was no impaction, the head had steadily advanced, there was no deformity of the pelvis, and there had been no interference with the labour in any way.

Mr. D. S. Jones makes some strictures on this case; the indication after the rupture of the uterus was manifestly to deliver as quickly as possible, and the delivery might have been much more quickly effected with the forceps than by craniotomy. Accoucheurs have resorted to craniotomy when the head was still high up in the pelvis, to prevent its escape into the peritoneum; in such a case as Mr. Tyte's, where the head pressed upon the perineum, and receded but little, the forceps was unquestionably the proper mode of delivery.*

23. A case of recovery from this dreadful accident is mentioned.† A woman, 24 years of age, became pregnant, and the fœtus required to be extracted by means of turning. After removal of the placenta, Dr. Bruhl discovered a rupture of the uterus, through which the intestines projected. These were returned and kept in their place by means of a piece of sponge, and the patient treated in the usual antiphlogistic manner. At first, on account of the putrid condition of the uterus, baths of a solution of chloride of lime, and afterwards of a red wine infusion of aromatic herbs, were employed. The patient suffered from vomiting, meteorismus, and constipation; but these were successfully combated, and she ultimately recovered completely.

An extract from Chelius, on the nature of the cicatrix after recovery from this accident, will be found in our first part. (Art. 78, p. 146.)

24. *Sudden Death during a Premature Labour.*—A very interesting case is described by Mr. Chandler, of Vermont.‡ The labour was progressing favorably, and the only circumstance that could be remembered, as leading to a suspicion of anything being wrong, was that the patient complained at the accession of labour of a severe and unusual pain "at the stomach." About four hours afterwards, when Mr. Chandler was expecting every moment to receive the child, the pains suddenly ceased, a profuse diarrhœa supervened, and in ten minutes afterwards, to his utter consternation, she was a corpse. At the time he could think of no adequate cause of the event, but on *post-mortem* examination the liver was found to be rent, almost literally, in twain. She had suffered years previously with symptoms of an affection of the liver, and the texture of the organ was found to be softened to the greatest degree. Mr. Chandler suggests that probably the laceration was first produced by

* Lancet, May 2, 1846, p. 494. † The Northern Journ. of Med. from Caspar's Wochenschr. Nov. 1845. ‡ The Boston Med. and Surg. Journ. Jan. 1846, p. 398.

some unusual effort in walking or otherwise, and that the premature labour came on as a consequence.

25. *Placental Presentation.*—In our last Report on Midwifery (vol. ii, p. 288) we pointed out to our readers that the remarkable question originating with Dr. Simpson, on the propriety of extracting the placenta before the child, was still undetermined, and that statistical data, of undoubted accuracy, are necessary to decide it. We have now the pleasure of placing on record some important additions to these data, and in particular the following table (pp. 266-7), published in the 'Medical Gazette,* by Dr. J. C. W. Lever.

Of the 34 cases in this Table, 2 women only were primiparæ:—In 5, it was the 2d confinement; 3 the 3d; 4 the 4th; 5 the 5th; 4 the 7th; 3 the 8th; 3 the 9th; 1 the 10th; 2 the 11th; and 2 the 16th.

Two women are stated to have arrived at the full period of utero-gestation, twelve to have been delivered between the eighth and ninth month of pregnancy, and seventeen at the eighth month and under.

In fifteen cases the presentation of the placenta is marked "complete;" in eighteen it is stated to have been situated "partially" over the os uteri; in the case marked "not known," Dr. Lever believes it to have been complete, but the placenta was removed piecemeal by the midwife before Dr. Lever was called to the case.

*Mode of delivery.*—In two cases of partial presentation, the membranes were ruptured, and delivery completed by the natural efforts. In thirty, the operation of inversion was performed; in one of the cases the head of the child could not be extracted until its size had been lessened by the perforator. A similar operation had been practised in her previous confinement (the first). In but one case was the placental mass perforated by the hand of the operator.

In one case (34) the patient had lost a considerable quantity of blood, being attended by a midwife, who had removed the placenta "piecemeal;" the divided funis protruded through the external parts. After administering stimulants, and waiting for some time until the patient had rallied, she was delivered by means of the crotchet.

In case 33, the patient was found sinking, with no pulse at the wrist, and the heart's action scarcely to be felt. At three o'clock in the morning of the day she was visited, she had had her eighth attack of bleeding; these losses having occurred in the course of five weeks. The presentation had not been discovered, and blood was still trickling from the vagina. Brandy and ammonia were given by mouth, and brandy in gruel injected "per anum." The hand was readily admitted into the vagina, which was very relaxed, and a considerable portion of the placenta was found detached and protruding through the os uteri; its remaining attachment was separated, and the mass removed; there was no pulsation of the funis. The bleeding immediately ceased, and did not recur until her death, which shortly took place. This was a case in which the efficacy of transfusion might have been tried, but not knowing its nature when he left home, Dr. Lever was unprovided with the necessary instruments.

One of the cases was delivered by Dr. Ashwell, two by Mr. Tweedie, three by pupils attached to the Lying-in Institution of Guy's Hospital, three by surgeons in practice, and the remainder by Dr. Lever himself.

* Dec. 1845, p. 1422.

THIRTY-FOUR CASES OF

| Number. | Age of Patient. | No. of Confinement. | Supposed Period of Pregnancy. | Nature of Presentation. | Mode of Delivery. | Sex of Child. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Alive. | | Dead. | |
| | | | | | | Boy. | Girl. | Boy. | Girl. |
| 1 | 40 | 1 | 8½ mo. | Complete | Turning | | | 1 | |
| 2 | 43 | 16 | 9 mo. | Complete | Turning | | | 1 | |
| 3 | 39 | 9 | 8½ mo. | Complete | Turning | | | 1 | |
| 4 | 35 | 7 | 7½ mo. | Partial | Turning | | | | 1 |
| 5 | 23 | 2 | 8 mo. | Partial | Turning | | | 1 | |
| 6 | 31 | 4 | 8½ mo. | Complete | Turning | | | | 1 |
| 7 | 40 | 8 | 8½ mo. | Partial | Turning | | 1 | | |
| 8 | 27 | 2 | 7 mo. | Partial | Turning | | 1 | | |
| 9 | 32 | 5 | 9 mo. | Partial | Mem. ruptured | | 1 | | |
| 10 | Not stated | 11 | 9 mo. | Complete | Turning | | 1 | | |
| 11 | 28 | 2 | 9 mo. | Complete | Turning and Perforation | | | 1 | |
| 12 | 42 | 16 | 8½ mo. | Complete | Turning | | | 1 | |
| 13 | 38 | 4 | 8 mo. | Complete | Turning | 1 | | | |
| 14 | 38 | 7 | 8 mo. | Complete | Turning | 1 | | | |
| 15 | 23 | 3 | 8 mo. | Partial | Mem. ruptured | | | 1 | |
| 16 | 39 | 5 | 8½ mo. | Partial | Turning | 1 | | | |
| 17 | 27 | 2 | 8 mo. | Partial | Turning | 1 | | | |
| 18 | 38 | 3 | 8 mo. | Complete | Turning | | 1 | | |
| 19 | 37 | 8 | 8 mo. | Partial | Turning | 1 | | | |
| 20 | 25 | 5 | 8½ mo. | Complete | Turning | | 1 | | |
| 21 | 33 | 1 | 7 mo. | Partial | Turning | | 1 | | |
| 22 | 28 | 3 | 8 mo. | Complete | Turning | | | 1 | |
| 23 | 29 | 2 | 8 mo. | Partial | Turning | | | | 1 |
| 24 | 40 | 11 | 8½ mo. | Partial | Turning | | | 1 | |
| 25 | 40 | 9 | 8 mo. | Partial | Turning | | 1 | | |
| 26 | 29 | 4 | 8½ mo. | Complete | Turning | | | 1 | |
| 27 | 41 | 9 | 8 mo. | Partial | Turning | 1 | | | |
| 28 | 39 | 7 | 9 mo. | Complete | Turning | 1 | | | |
| 29 | 28 | 5 | 8½ mo. | Partial | Turning | 1 | | | |
| 30 | 31 | 4 | 8 mo. | Partial | Turning | | 1 | | |
| 31 | Not known | 5 | 7 mo. | Almost Complete | Turning | 1 | | | |
| 32 | 42 | 10 | 8½ mo. | Nearly Complete | Turning | | | 1 | |
| 33 | 38 | 8 | 8½ mo. | Complete | Placenta removed | | | | |
| 34 | 35 | 7 | 8 mo. | Not known | Perfor. | | | 1 | |
| | | | | | Total . . | 9 | 9 | 12 | 3 |
| | | | | | | 18 | | 15 | |

PLACENTAL PRESENTATION.

| Result to Mother. | REMARKS. |
|---|---|
| Recovery | Outlet contracted in its lateral diameter. |
| Recovery | |
| Death | Transfusion performed. Died in 7 hours after delivery. |
| Recovery | Two thirds of anterior portion of disc covered. |
| Recovery | Rather more than two thirds of anterior portion. |
| Recovery | |
| Recovery | Membranes ruptured and subsequent version. |
| Recovery | Rather more than two thirds of posterior portion of disc covered. Child died 5 days after delivery. |
| Recovery | Labour completed by natural efforts. |
| Recovery | |
| Recovery | Perforation performed in her previous labour. |
| Death | Died half an hour after delivery. |
| Recovery | |
| Recovery | Child born still, but resuscitated. |
| Recovery | Convulsions three days after delivery. |
| Recovery | Two thirds of anterior portion of disc covered. |
| Recovery | Rather more than half anterior disc covered. |
| Death | On tenth day from pericarditis, brought on by exposure. |
| Death | Within one hour of delivery had lost a very large quantity of blood. |
| Recovery | |
| Recovery | Rather more than half of anterior portion of disc covered. Child died in a few hours. |
| Recovery | |
| Recovery | Anterior portion of os uteri covered. |
| Death | In one hour after delivery. |
| Recovery | Three fourths of disc covered. |
| Recovery | Protracted convalesence. |
| Recovery | Three fourths of disc covered. |
| Recovery | |
| Recovery | Two thirds of anterior portion of disc covered. Patients for some days in a doubtful state from pleuro-peripneumony. |
| Death | Rather more than three fourths of os uteri covered. Died 5th day with peritonitis. |
| Recovery | Child died three hours after delivery. |
| Death | From phlebitis on 9th day. |
| Death | Child undelivered. |
| Recovery | Placenta removed by a midwife. |

Thirty-three children were delivered; eighteen born alive, and fifteen dead. Of the eighteen born alive, nine were males, and nine females. Of the fifteen still-born children, twelve were males, and three females; so that twenty-one children were males, and twelve were females. Eight deaths occurred; of these, three deserve especial notice. In one case (18) the woman died with pericarditis, having, in the absence of her nurse, risen from her bed a few days after her delivery, and walked down stairs to open the street door. In case 30 peritonitis took place on the third day, and proved fatal on the fifth day. In case 32 the patient died on the ninth day of phlebitis, having been exposed to contagion. These causes of death might have prevailed if the labours had been perfectly natural. Case 33 died with the child in utero, a short time after the removal of the placenta. In four cases death took place soon after the performance of the operation of version: case 3, in seven hours, transfusion having been unsuccessfully performed; case 12, immediately after delivery,—this woman had had previously two copious losses of blood, without sending for assistance; case 19, in one hour after delivery,—her powers were previously reduced by gin-drinking, and a want of food; and case 24, a weakly woman, who had born ten children, and was most destitute.

Dr. Lever has seen three other fatal cases in which version was performed. In one, the woman died while the operator's arm was in the uterus; in the second, the patient expired three quarters of an hour after delivery, hemorrhage continuing after the extraction of the child and secundines, with the uterus well contracted, the os uteri having probably been lacerated by the hand of the operator; and in the third, the patient died immediately after the delivery of the child before the expulsion of the placenta.

On the other hand, the Journals contain a good many cases in which the placenta was delivered either spontaneously or artificially, before the child, mostly with a successful result; of these we have notes of the following:

Mr. Wells records a case in which the os uteri being dilated to about the size of half-a-crown, he passed two fingers between the placenta and cervix, and with some difficulty separated them completely all round; the child was subsequently delivered by the feet, the leg with one arm having presented; the placenta followed the head immediately, and the woman recovered.*

Mr. Hardinge gives a case in which, the placenta having been expelled, there was no hemorrhage afterwards; the feet of the child presented. This gentleman suggests that where the placenta is partially separated, the blood flows mainly, but not entirely, from the exposed placental surface, and that this view of the case explains and justifies the practice of separating it.†

Dr. E. A. Corry was also called to a case in which he found the placenta in the vagina without hemorrhage,—an arm presented, and the child had to be eviscerated,‡ but the woman recovered.

In a case by Mr. Tweed,§ the os uteri being dilated to the size of a crown-piece, two hours afterwards the placenta was expelled; no further hemorrhage ensued; ergot was given in consequence of the relaxation of uterine pains, and a still-born child was expelled exactly an hour and a half after the placenta. The patient did well.

Directly opposed to Mr. Harding's view is Mr. Ion's, of Lambeth. He objects to separating and delivering the adherent placenta, for two reasons: 1st, should the os uteri be in a state of rigidity, as much difficulty will be experienced in detaching the adherent placenta, and nearly as much force required as for the artificial delivery of the child; 2d, should the completion of the delivery be delayed it is calculated to encourage an unnecessary increase of the hemorrhage.‖

* Lancet, Nov. 8, p. 504. † Ibid. Nov. 22, p. 576. ‡ Ibid. Dec. 6.
§ Ibid. Jan. 3, 1846, p. 9. ‖ Ibid. Dec. 13, 1845, p. 644.

Mr. Goddard, again, describes a case which appears to show that the removal of the placenta before the child is the most effectual means of arresting the hemorrhage.* There is a case also, by Mr. George Brown, wherein the hemorrhage was arrested immediately after the separation of the placenta.†

The following case adds proof to the already acknowledged assertions: First, that placenta prævia is apt to occur, not infrequently in the same individual; and secondly, that the separation and expulsion of the after-birth, previously to the child, is not of so dangerous a character to the mother as was formerly supposed.

Mrs. W., a woman of stout plethoric habit, was seized with a severe fit of coughing, which was followed by a discharge of blood from the uterus. Mr. Ley, of South Moulton,‡ found her suffering from hemorrhage to a very considerable extent. She did not expect to have a child for about a month. The usual remedies were prescribed, with perfect quietude, the horizontal position, &c., and she rallied, but flooding continued to a trifling extent, occasionally during the next month, about the expiration of which time Mr. Ley was sent for, being informed that the patient was then in labour. On arriving, the uterine contractions had commenced, the os uteri was about the size of a crown-piece, and easily dilatable; the after-birth presented, and the hemorrhage at that time was considerable; a very few pains expelled the placenta. On making an examination the head of the child was found presenting, the flooding ceased, and in about ten minutes the child was born. Mr. Ley attended the same patient four times in labour; three times out of the four there has been a placental presentation, twice the placenta was expelled before the child, and once he delivered by turning. No subsequent hemorrhage occurred in either case.

Mr. Dorrington§ is of opinion that the method of treatment by separating the placenta before delivery has been somewhat abused, its object misunderstood, and the lives of some children sacrificed by its inconsiderate adoption. In the opinion of this gentleman, nothing but the most extreme danger of the mother can justify a practice which almost necessarily involves the death of the child. The majority of the cases of placenta prævia, if seen sufficiently early, are manageable enough in the old methods, viz. rupturing the membranes, or artificial delivery by turning, and till one or other of these means can be adopted, the steady use of the vaginal plug. In a fair proportion of these cases the child is born alive, and few practical men will concur in Dr. Simpson's views as to the mortality of the mothers, which he appears materially to overrate. The separation of the placenta prævia before delivery is justifiable in two sets of cases only; the first is where we have satisfactory evidence of the death of the child, or what is equivalent, where organic alterations in the hard and soft parts have so lessened the diameter of the passages as to compel us to adopt craniotomy to terminate the labour; and the second is, where the woman is so exhausted as to be unable to bear the shock of delivery, the hemorrhage still continuing, or if not continuing most likely to recur. Hence, although most valuable in its proper place, the treatment can be very rarely required.

Galvanism, in the opinion of Mr. Dorrington, will be found serviceable in numerous cases which the obstetrician in active practice is frequently meeting with, and among others in cases of placenta prævia. It will require a long experience to determine to what extent it is capable of superseding delivery by turning in these cases, but probably it is applicable in most cases of partial

* Lancet, Dec. 13, 1845, p. 645.
† Ibid. Dec. 27, p. 694.
‡ Prov. Med. and Surg. Journ. April 22, 1846.
§ Ibid. March 11, p. 106.

presentation, where the flooding has not been very great, and where it is not going on rapidly at the time we are called in, provided the os uteri is dilatable; but where we cannot afford to lose any time in sending for the apparatus, and where the discharge is so impetuous as to require checking absolutely and at once, the woman still being in a state to bear the shock of delivery, the old practice is to be adopted without hesitation. We want facts also to show whether those cases where the placenta is planted so completely over the os uteri that the membranes cannot be felt, are as well suited to the galvanic treatment as cases of partial presentation, or whether they are suited at all. Mr. Dorrington entertains a strong opinion that if Dr. Simpson's advice, given rather generally, be adopted, a certain number of children that might have been saved will be lost, and he thinks it very probable that the risk of uterine phlebitis may prove greater in forcible detachment of the entire placenta, than in turning after detaching it partially.

The whole subject of placenta prævia is admirably treated in a paper by Mr. J. E. Wood, read before the Medical Society of University College, and published in the Provincial Medical and Surgical Journal.* This paper, not professing to contain anything new, gives a succinct account of the literature of the subject. It appears that Mr. Kinder Wood, of Manchester, in 1821, strongly urged the propriety of the practice recently brought before the profession by Dr. Simpson, of Edinburgh. The evidence brought together by Mr. Wood, in collating the materials before him, is greatly in favour of the practice of detaching the placenta artificially, as advocated by Dr. Simpson.

26. *Uterine Hemorrhage after Delivery.*—J. R. Pretty, Esq.† describes an improved apparatus for applying pressure in post-partum hemorrhage. It consists of three pads, the central one being the largest; the lateral ones are the thicker and narrower, and fold over the central one when not required for use, and these can be carried separately from the belt, &c., and when together are not larger than a small book. The belt is of webbing about three inches wide, and is fastened by a buckle and strap. It has attached to it Mr. Coxeter's improved tourniquet, the screw of which is only one half the length of the one on the old principle, and yet it raises as much web, so that it is easily carried about. The application is very simple; you merely adjust the pads, pass the belt under the woman, and fasten it on the right side as tightly as possible, and then give the tourniquet screw one or two turns. You thus have a most powerful grasping pressure at your command, from which the uterus will not slip; the pressure is at the same time made as diffused and equable as possible. The lateral pads quite do away with the necessity of a broad bandage, as the use of the latter would be to afford support in front, which it fails to do; and the advantages of a narrow one are these—it is more portable, it is more easily passed under the patient and fastened, and it presses behind only on bony structures, and not, as the broad one, half upon these and half upon the yielding soft parts above them. The lateral pads can be made pockets, with the metal plates behind, with soft materials when required for use, as old linen, or they might be made air cushions, to be inflated when required for use, though it is doubtful whether these last would thus answer. The stuffed ones are not at all too large to be easily carried in the pocket, and no one, save a very fastidious person (which an accoucheur is not likely to be) could object to carry them. However persons may differ from these views, Mr. Pretty hopes that it will not prevent a fair trial of this apparatus, and believes that the only differences that can exist would be theoretical ones, as he feels convinced that these pads, &c., will be found equal to

* Feb. 11, 18, 25, and March 4. † The London Med. Gaz. Jan. 1846, p. 114.

arrest violent flooding, or the draining succeeding this, immediately, and that pressure thus applied will, in time, be considered the most safe and effectual means that we have at command.

The belt, pads, &c., can be seen at Mr. Coxeter's, Grafton-street, University College.

Mr. Harvey, of Castle Hedingham, Essex, after complimenting Mr. Pretty for the ingenuity displayed in the construction of the belt and pads, offers for the consideration of the profession* a method which he several times practised with complete success, and which he thinks will be preferred, even by Mr. Pretty himself, as answering every purpose, and not requiring any machine or apparatus to be carried in the pocket, all that is needed being easily obtainable in every house and at all hours.

Suppose, for instance, hemorrhage to an alarming extent occurs immediately after the expulsion of the placenta, he instantly turns the patient on her back, and grasps the uterus firmly with the hand, through the abdominal parietes, till he feels it contracting; then takes a small bowl or basin capable of containing twelve or fourteen ounces, and having a thick smooth edge, this basin he inverts over the body of the compressed uterus, taking care that the whole of it is compressed within the cavity of the basin. He now confines it steadily by a towel folded lengthwise, and passed under the hips of the patient from right to left, then brought up over the basin, and secured by three or four strong pins. Or, in lieu of the towel, two strong silk handkerchiefs may be used in the following manner:—Let each handkerchief be folded separately, as a man folds his neckcloth, fasten them together at one end by a reef-knot, allowing the other two ends to remain free; pass the reef-knot under the hips of the patient, from right to left; bring it up over the basin, which should be firmly pressed down by an assistant. Now take one of the free ends, and pass it through the loop, or bight, as a sailor would term it, formed by the reef-knot, draw it firmly down, and with the other free end tie a slip-knot exactly as the tapes are tied round the splints for securing a fractured limb. Thus confined, it is impossible the uterus can be again distended, and any further hemorrhage must appear externally. Perhaps it will be as well to place a thin soft napkin or allow the patient's under-garment to remain between the surface of the abdomen and the basin, to prevent the possibility of its acting as a cupping-glass.

27. *Retention of the Placenta during Three Months.*—A woman, aged 30, had been delivered three months of her third child, when a slight hemorrhage remained, accompanied with pain in the uterine region, and a sense of debility, but no fever. On examination, M. Malagodi found the uterus a little swelled, hard, and appearing as if occupied by a foreign body. The orifice was nearly closed. The patient herself said that at the period of delivery the placenta did not come away; the midwife after making unsuccessful efforts to extract it, left the matter to nature. M. Malagodi considered that the hemorrhage resulted from irritation of the uterus, brought on by the contact of the placenta, and without dreaming of an operation to extract it, he prescribed ergot of rye. After a few doses uterine contraction came on, and terminated by the expulsion of a fleshy compact body, of a deep red colour, having the form of the uterine cavity, in which it had been so long compressed. M. Malagodi had no doubt that it was the placenta, and the woman rapidly recovered.†

28. *On the Employment of Galvanism in certain Obstetrical Emergencies.*—Our first volume contains a full account of Dr. Radford's views on the subject of galvanism as a remedy in uterine hemorrhage. (p. 159.) Mr. Thomas

* The London Med. Gaz. Jan. 1846, p. 219. † Gaz. Méd. de Paris, from Il Raccoglitore Medico.

Dorrington, of Manchester, has read a paper on the same subject to the Manchester Medical Society,* in which he states his belief that it is one of the most valuable additions that has been made to our obstetrical armamentarium in modern times. Mr. Dorrington believes, as stated in our last article, that the treatment of *placenta prævia* by removal of the placenta can be very rarely required, whereas the application of galvanism is serviceable in many cases which the obstetrician is frequently meeting with. A case of internal hemorrhage treated in this way is recorded in our Extracts (art. 82). Mr. Dorrington remarks, that although unfortunate, it was one of the most satisfactory cases he has seen, since it was at first considered morally impossible that the woman could live to be delivered. Coupling her exhausted state with the undilated and undilatable condition of the os uteri, and the fact that the hemorrhage was in all probability continuing, rendered it one of the most formidable cases that could be met with. Ergot having been administered before the galvanism was used enables us to compare the relative effects of the two remedies, and the difference was most marked. The action brought on by ergot did not occur till twenty minutes or half an hour after its administration, the contractions were not nearly so strong, and the uterus in the intervals between the pains remained soft and doughy. The action brought on by the galvanism was instantaneous, the contractions were much stronger, and the galvanism acted as a general stimulant. Mr. Dorrington regrets that transfusion was not adopted, and suggests that the combination of transfusion with the galvanic treatment is peculiarly applicable to these cases. Another case is given of accidental hemorrhage before labour, where the uterus was dilated to the size of half-a-crown, the head presented, but no portion of the placenta could be detected, the membranes were ruptured, and a considerable quantity of liquor amnii came away, but no probability of labour occurred. As it was not impossible that insidious internal hemorrhage might take place, galvanic shocks and currents were applied both in the longitudinal and the transverse axes of the uterus. The firmest tonic contraction came on the moment the organ was stimulated, and when the conductors were finally removed, a good tonic state of the organ existed. It roused the woman, and in her own words, made her "feel better than she had done for months." Labour commenced nineteen hours after the galvanism was applied, without any further hemorrhage having occurred, and terminated in about two hours and a half. Mr. Dorrington remarks, that it was satisfactory in this case to be able to put the uterus into such a state as to preclude the probability of the recurrence of hemorrhage, which might have happened if nothing had been done after the rupture of the membranes. Had the ergot of rye been used the probability is that the child would have been born dead, and the labour forced on before the os uteri was prepared to dilate.

28. A third case is one of *placenta prævia*, hemorrhage occurring both before and during labour. The os uteri was found oval in shape, dilated to the size of a penny-piece, tolerably dilatable, and almost entirely filled up by the placenta. The membranes could just be felt anteriorly, and they were ascertained to be unruptured, and the head presented. There had been occasional slight labour-pains. The case was thought favorable to try the experiment of delivering the child without turning, by means of the uterine action induced by galvanism, combined with artificial rupture of the membranes. At a quarter to two p.m. the conductors were applied in the usual way, and good strong uterine action set in at once. In about ten minutes the membranes were ruptured with Holmes's stilette, and the galvanism continued till twenty minutes past two p.m., by which

* Prov. Med. and Surg. Journ. March 11, 1846, p. 105.

time the pains had began to come on spontaneously at intervals, and the placenta had fallen down to a considerable extent into the vagina; the hemorrhage was extremely slight. At three the labour-pains were regular and the fœtal heart audible. At five p.m., the uterine action was not so strong, and very little change had taken place. There was no hemorrhage. Galvanism was reapplied, using a great power. The os uteri was dragged into the axis of the vagina, as an obliquity of the organ appeared to prevent the head from entering the pelvis. In an hour there was a decided advance; the head had descended into the brim of the pelvis, and was dilating the os uteri rapidly, and there had been no further flooding. The placenta continued to descend before the head; when the child was born its most depending portion was protruded from the os externum before the head, so that the child passed over the half-detached placenta along the vagina. The child was born dead, though the fœtal heart was audible till half an hour before its birth. The placenta came away immediately after the child, the labour was terminated at twenty-five minutes to seven, p.m., and the woman recovered well.

Mr. Dorrington considers that much less risk was incurred by the mother, by this plan, than would have been incurred by the old method of turning. Uterine phlebitis is more frequent after placenta prævia than any other form of labour, which greatly depends on the exposure of the orifices of the uterine sinuses to the contusing effects of the child during delivery; and as this source of danger is unquestionably incurred, if the hand has to be passed through the os uteri and the child delivered by the feet, a plan of treatment which will supersede that method has strong claims on our consideration. The process of delivery in this case was analogous to that which takes place when such cases terminate without surgical assistance, the only difference being, that the uterine action was excited by the galvanism instead of being spontaneous, and the membranes were ruptured at an earlier period than that at which they would have given way if left untouched.

Dr. Johnson, of the Salop Infirmary, records a case* which tells in favour of this practice. It is one of profuse uterine hemorrhage of a fortnight's continuance. The most powerful internal and external remedies having been resorted to, there was every appearance of the patient sinking; the os uteri was patulous, and seemed to be quite impassive, and in such an atonic state as to be incapable of contraction. Several moderate galvanic shocks were passed through the uterus, which was once or twice found to contract very forcibly, and a small clot or two was passed. The patient appeared to have some wholesome pain, and for half an hour afterwards was restless and uneasy, as if something was going on. After this there was no cause of alarm for a fortnight, the uterus was ascertained to have gradually contracted, when some small florid clots were passed, preceded by florid hemorrhage, but the patient became convalescent under the use of citrate of iron and alum and zinc injection, without again recurring to the application of galvanism. Dr. Johnson considers that the galvanism, in this instance, enabled him to save a valuable life.

H. Wilson, Esq., of Runcorn, also describes an alarming case† of uterine hemorrhage, with syncope and convulsions, pregnancy having advanced about two months. The patient was pulseless, her extremities cold, and she was thought to be dead; reaction, however, occurred under the use of stimuli, the hemorrhage returned, and the case appeared to be utterly hopeless. She could no longer swallow brandy, was only roused from a state of apparent insensibility, bordering on syncope, by the scarcely interrupted application of

* Prov. Med. and Surg. Journ. March 25, p. 133. † Ibid. April 25, p. 193.

ammonia to the nares; the pulse was doubtfully perceptible, the eyes rigidly open and fixed, and death seemed imminent.

Shocks and continuous currents of the galvanic fluid were now transmitted through the parts intervening between the sacrum or loins, and the interior of the uterus. Ten minutes elapsed before the patient appeared sensible of the galvanic agency. The first indication of this was observed in her countenance; her glassy, corpse-like eye brightened up. In ten minutes more her pulse was more distinctly perceptible, and she complained of pain in the abdomen. After continuing the galvanic influence a few minutes longer, the apparatus was withdrawn.

For some hours afterwards her condition was critical, but a decided improvement had taken place. The pulse increased in volume and power, she was enabled to take nourishment, the vagina was no longer above the natural temperature, the os uteri was less open, and the discharge had diminished to a mere coloured fluid. On the following morning the hemorrhage had not returned; *but with the urine a fleshy substance about the size of a small fig had been voided*, and the patient recovered. Previous to the application of the galvanism gallic acid, ergot, and cold water injections had been resorted to.

29. *Pelvic Inflammation ending in Abscess.*—After an historical sketch of the writings extant on the subject of abscesses occurring in the pelvis subsequent to parturition, Mr. Joseph Bell, of Glasgow, in an original communication to the London Medical Gazette*, gives a detailed account of six cases. In the course of this paper, the writer refers to certain cases described by Sir Charles Clarke and others as "Inflammation of the mucous membrane of the uterus, terminating in the secretion of pus," attended with contraction of the cervix; and he states his conviction, beyond doubt, that many of the cases so described were pelvic abscesses, not at all involving the uterus. In the first and third cases described by Mr. Bell the abscesses discharged themselves through the rectum, the second through the vagina; and sometimes there is a tumour or hardness in the hypogastric or iliac regions, but this is by no means constant. The fourth case pointed at the crural ring, in front of the femoral vessels, and was punctured with a grooved needle. The fifth presented, and was opened immediately behind the hip-joint. The two last cases were mistaken, and at first treated for uterine peritonitis, but a vaginal examination at once determined the nature of the affection. In the sixth case a puncture was in the first instance made where the feeling of fluctuation was most distinct, a little below the umbilicus, but the matter was ultimately discharged by a counter-puncture made in the vagina. All the patients recovered.

## § III.—*Diseases of Children.*

30. *On Hypertrophy of the Heart in early life.*—Dr. Sculir of Zell,† describes the symptoms which attend this state of the heart in infancy, and occasion death, as clearly distinct from those that occur in later years. The author observed eight cases of this nature in infants. As regards the original volume of the heart of new-born infants, Krause found that many of those which he tried weighed from 247 to 434 grains, the relative weight, as compared with that of the whole body, being from the $\frac{1}{130}$ to the $\frac{1}{186}$, or a mean of $\frac{1}{151}$. In adults, the relative weight is smaller. During the first year of life the proportion remains nearly as at birth. The mean weight of the heart in children a year old, was 1030 gr., and the maximum 1180 gr. The author has convinced himself that the estimation of the volume of the heart by comparison with the fist does not hold good in new-born and young

* Dec. 1845, p. 1410. † Roser's Wunderlich's Archiv, III, 4.

children. The heart is here considerably larger; moreover the proportional thickness of the ventricular walls is not the same, the difference between the two ventricles being smaller, which is naturally the case, as in the embryo the right ventricle so nearly supplies the place of the left.

31. *Signs of a Healthy Heart in Young Children.*—In new-born children the beating of the heart is not externally perceptible. The exact period at which it becomes sensible is very variable, most frequently it happens from the 9th to the 14th month; seldom earlier, not unfrequently later. The structure and length of the thorax, with the capaciousness or otherwise of the intercostal spaces, influence this circumstance, as does also, but in a less degree, the vigour of the constitution. In an arched thorax, with thick walls to the chest, the beats usually appear later. Now and then, whilst an infant is kept in an erect position, they become perceptible, and disappear in the recumbent posture. After continued crying, or straining, or excitement, they are sometimes temporarily felt.

In the asphyxia of new-born infants, the beating becomes perceptible from superabundance of blood, and disappears some time after the quantity is reduced. Fever without disease of the lungs, renders it perceptible to the palm of the hand, though scarcely visible to the eye, as a clear impulse. In pulmonary disease and during convulsions, it is very much increased and becomes perceptible even in children under four months old. The beating of the heart of healthy children is felt naturally as a very weak stroke between the fifth and sixth ribs immediately under the nipple. The impulse produced by disorder is, on the contrary, to be felt more frequently and strongly at the Scrobiculis cordis, on account of the distension of the right side of the heart, for with the greater increase of the mechanical obstacles in the pulmonary circulation, the palpitation in the heart increases in strength and clearness. Very strong palpitations have been observed with husky cough, when through the weakness of the external muscles of inspiration a levelling and sinking of the thorax on one side is produced. The partial pressure thrusts the displaced portion of the heart into a direction more vertical and forward against the median line.

Among the circumstances likely to produce an increased impulse in the hearts of infants we may enumerate leanness, capacious intercostal spaces, great preponderance of blood to the right side of the heart, increased action of the heart, and pressure of the apex against the median line. In reference to the signs which the percussion and auscultation of the healthy hearts of children yield, the author has observed no difference of importance from that of adults.

In the cases observed and described by the author, we find as attendant phenomena, more or less continued, or often returning disturbance of the respiration, husky cough, spasm of the glottis, shortness of breath, pleuritis, bronchitis, hyperæmia, and hepatization of the lungs, in various degrees. The question is whether these disturbances were the causes of the increase in the volume of the heart. In most cases this question may be answered in the negative; it may be presumed that the increased size of the heart whether of the right side, as usual with infants, or of the left, existed from birth.

32. *Ætiology.*—This presents difficulties on several accounts. In the first place, the signs afforded by percussion and auscultation in children are in general less certain and more difficult to distinguish, as well with regard to diseases of the lungs as of the heart. In the former, the loud puerile respiration is calculated to lead a hasty observer to believe that disease is present.

In heart disease, on the contrary, the feebleness of the sound is an obstacle; the local signs also are less diagnostic, and deviate less from the original healthy sound. A clear and strong impulse, however, has an important diagnostic value. Again, functional disturbances cannot have produced en-

largement of the heart as in adults, because with them the disorder has not been of sufficiently long duration. But the external appearance of a child and the colour of the countenance appear to be worthy of especial observation. Almost all the children observed by the author were corpulent, but of torpid habits. In all the cases an extraordinary white colour of the countenance existed; most of them were annoyed by vehement and long enduring cough, dry, sharp, and hard sounding, formed in the throat, accompanied with a continuation of forcible efforts at expiration, which were uninterrupted by any clear inspiration. By the vehemence of this cough the tongue was forced from the mouth, the countenance distressed, and the patient unquiet and anxious.

These attacks were frequently renewed, and they endured for weeks together; they disappeared, and then apparently relapsed, after a slight catarrhal inflammation. The course of febrile disorders accompanying heart disease manifested variations more or less important from the common course of fever.

When measles appeared, the frequency of the impulse, the cough, and the shortness of breath were increased beyond their customary degree; a strong watery sweat was exuded, especially from the head, which came on from eight to twelve hours after the commencement of the fever. The exanthem appeared sparingly, the eruption was almost over in 24 hours, and on the third day was scarcely visible. With the eruption the pneumonic process commenced, the rash was of a dull red colour, and quite flat, the skin not turgescent. The simple complication of measles with pneumonia produced a similar issue. The pneumonia with disease of the heart was always acute. It occurred in six of the eight cases observed by the author. Even on the second day the pulse and the respiration had become extremely frequent, the former was upwards of 180, and the latter upwards of 70; the countenance was blanched, the lips purple, and cold watery sweat stood upon the head; the temperature of the extremities was decreased, the eye was languid, and strong and suffocating cough was very distressing. This was also the case where the advance of the pneumonic process did not correspond with the violent development of the pneumonia. A cure of the pneumonia was not effected in one instance. In four cases it terminated in death, in between 40 and 70 hours, and in two instances it was converted into chronic hepatization.

Hence it is clearly manifest that the cardiac malady exercised an influence over the fatal issue of the pneumonic process.

In adults also, the author found the course and result of inflammatory processes affected by organic disease or malformation of the heart. In general we find this indicated by the following common features. The feverish heat of the skin decreases rapidly, more so than happens in simple inflammation; the temperature sinks, especially at the extremities, below the common degree. In the development of the exanthemata the critical sweats are interrupted, or perhaps do not occur at all; on the contrary, copious watery sweats exude, more especially on the head; the pneumonia is either converted into chronic hepatisation, or speedily terminates in death, there being observed an enormous acceleration of the activity of the heart and of the respiratory organs. The active hyperœmia of the bronchial mucous membrane assumes in a short time a chronic character, and the tendency to dropsical effusion is increased and hastened.

The alterations in the circulation of the blood, and probably in the composition of the blood in the capillary vessels, and especially the deviations in the quality and quantity of the secretions, serve as an explanation of these phenomena.

# IV.

# REPORT ON THE PROGRESS OF HUMAN ANATOMY AND PHYSIOLOGY.

BY WILLIAM S. KIRKES, M.D.

Graduate in Medicine of the University of Berlin.

## § I.—*General Anatomy and Physiology of the Tissues.*

1. *Muscular Tissue, its Contraction.*—E. Weber* has disproved the correctness of the statement that when a muscle contracts, its fibres are thrown into zig-zag flexures; he examined the fibres under the most favorable circumstances, namely, whilst they were kept in a state of continued contraction by the electric current derived from a rotating magnet. He found that muscular fibres, even though curved and twisted, became straight at the moment of contraction, whilst the originally straight ones remained so; it was only when the stimulus was discontinued, and the fibres by their own elasticity tended to elongate and resume their original position, that they formed zig-zag flexures, a circumstance pointed out by Mr. Bowman. He finds also that, during contraction, the muscular fibres do not become harder, as is generally supposed, but, on the contrary, they become softer and more extensile; the hardness which is felt depends on the increased tension of the fibres, such as is observed in the tendons and other tissues at the same time. The elasticity of the muscular fibre, as well as its hardness is also found to be diminished during contraction.

2. *Different Forms of Muscular Contraction.*—Continuing his experiments on the nervous and muscular systems, Professor Volkmann† finds that by means of the rotating magnet three distinct forms of muscular contraction may be excited. Sometimes a state of contraction is induced which continues so long as the stimulus is applied; this he calls *continued* (anhaltende) contraction. At other times a form of contraction is induced, which continues after the withdrawal of the exciting cause; this variety he terms *persistent* (nachhaltiger) contraction or spasm. In the third variety, although the stimulus is continued uninterruptedly, yet relaxation of the muscle alternates with its contraction, and movement is consequently produced: the muscle in each of the two former cases being quite motionless, owing to the state of tonic spasm in which it is held. He finds, moreover, that there is a considerable relation between these various forms of muscular contraction and the mode in which the stimulus exciting to contraction is applied to the motor nerve. Thus irritation may be applied to a motor nerve in three ways; either *directly*, to the trunk of the nerve, or *indirectly*, through the medium of the central organ; and the indirect mode may be one of two kinds, the irritation either

* Archives d'Anatomie Générale, et de Physiol. Jan. 1846. † Müller's Archiv, Heft v, 1845, p. 410.

commencing in the central organ itself, or originating at the extremity of a centripetal nerve, by which it is conveyed to the nervous centre, and thence reflected to the motor nerve, constituting what is termed reflex irritation. The results of numerous experiments (several of which will be again alluded to) lead him to the conclusion, that as a general rule, to which there are few exceptions, the *direct* irritation of a nerve induces the *continued* form of contraction, which lasts so long as the irritation is applied, and subsides at once on its removal; the central form of *indirect* irritation causes *persistent* contraction, or contraction which lasts after the cessation of the exciting cause, whilst the reflex form of indirect irritation causes muscular movements, in which relaxation alternates with contraction. In this latter form the irritation, by passing through a nervous centre, becomes modified, so that although it be itself continued uninterruptedly, yet the muscular contraction which it excites is not a continued one; the nervous centre therefore possesses a regulating power over the effect of this irritation on muscular contraction, and usually gives rise to muscular movements, which are of an orderly and definite character, being directed to the attainment of a given end. The application of these views to the explanation of many phenomena presented by muscular parts on irritation of the nerves supplying them, will be noticed under other heads.

3. *Rigor Mortis.*—The real cause concerned in the production of rigor mortis, and the exact condition of the muscle at the time of rigidity, has of late formed the subject of many inquiries, to which experimenters were especially stimulated by the statements of Brueker,* who attributed the rigidity entirely to coagulation of the fibrine of the liquor sanguinis, which is effused between the muscular fibres (and in the interspaces of other tissues), for the nutrition of the parts, but which at the time of death has not been disposed of. The incorrectness of this view, and the actual contracted state of the muscular fibres as the cause of rigor mortis, have been abundantly proved, and have lately received further confirmation from some experiments by M. Brueh,† which were undertaken with the view of clearly determining—1st, whether the rigid muscle is really in a state of contraction; 2d, whether, if this contraction exists, it is due to the action of any external cause; and 3d, to what property of the muscular tissue this contraction is to be referred. With regard to the first question he has furnished additional evidence that during rigor mortis the rigid muscle is really contracted. Thus in six experiments performed on rabbits, and one on the body of a man who had died of albuminuria, M. Bruch made a transverse incision in the muscles shortly after death, and then measured the interval comprised between the lips of the wound; after the lapse of a certain time he again examined the space left between the edges of the wound, and found it considerably increased, a circumstance which clearly proved that contraction of the muscle must have taken place. Respecting the influence of external causes on cadaveric rigidity, the experiments of M. Bruch were especially directed to determining the effect produced by cold, and he found that rigidity occurred in the ordinary time and condition, even when animals immediately after death were maintained at a temperature similar to that which they possessed during life; nevertheless, he observed that cold tended somewhat to hasten the appearance of the rigor. With regard to the property of the muscle, to which the contraction is to be referred (or in other words, the *kind* of contraction which ensues during cadaveric rigidity), M. Bruch observes that inasmuch as experiments with the galvanic pile show that rigor mortis does not begin to

* Müller's Archiv, Heft 3, 1842. † Notice of his paper in Gaz. Méd. Nov. 1, 1845.

manifest itself until every trace of irritability has disappeared from the muscles, and that consequently the disappearance of irritability is an essential condition to the occurrence of rigidity, everything which, such as cold, favours the appearance of rigidity acting only by diminishing or causing entirely to cease the irritability of the muscle, and that the contraction does not depend on any external cause, it ought to be regarded as a physical and not as a vital contraction, that is to say, it is a true elasticity [?] of the fibre.

4. *Contraction of Involuntary Muscles.*—The stimulating effect of cold in inducing contraction of involuntary muscular fibres was well shown in an experiment of Volkmann's,* in which he exposed the urinary bladder of a dog to the atmosphere; the organ at once contracted, and expelled the greater portion of the urine it had contained.

5. *Growth of the Muscular Tissue.*—The following is taken from Mr. Paget's recent admirable report.† "Professor Harting‡ has given an account of the comparative dimensions of the muscular fibres of the new-born child and adult, showing that the average diameter of the primitive fibres in the child is to that in the adult as 1 : 3·64, and the respective average intervals between the transverse striæ as 1 : 1·18. In the child, the distance between the striæ is to the width of the fibre as 1 : 4·415, in the adult as 1 : 8·42. It is hence deducible that the ordinary growth of a muscle is due to the increase in size, not in number, of its primitive fibres; but whether this increase of size is due to enlargement or to increased numbers of the primitive filaments, could not be determined. It is evident also, that of the growth of a muscle in its length, part is effected by the increase in the length or depth of the particles (?) on which its transverse striation depends; but this is not enough to account for the whole growth of a muscle between childhood and manhood; so that part of the growth in length must be ascribed to the increased number of these particles (?).

"He has also measured the muscles and their elementary parts in the healthy and the paralytic arm of an adult, from which it appears that the diminution of size accompanying the paralysis of the muscles was due to a diminution in the size, not in the number of the primitive fibres. But with the diminution in the size of the muscles, there was no corresponding diminution of the nerves; both their trunks and their ultimate fibres were of equal size in both arms."

6. *Varieties in the Muscular System.*—Mr. M'Whinnie§ has published an elaborate summary of all that is known respecting the varieties in the muscular system of the human body. These varieties, he observes, are found to a much greater extent in some regions of the body than in others; about the head and face they are comparatively rare, being more frequent in the neck and trunk, and most of all so in the extremities. Those individual muscles or groups of muscles whose functions are most uniform throughout the animal kingdom, such as the muscles of mastication, deglutition, &c., appear to deviate least. When these varieties occur, they are usually found only on one side of the body, not being symmetrical.

7. *Osseous Tissue. Ultimate Structure of Bone.*—Mr. Tomes‖ describes the ultimate structure of bone as consisting of minute spherical or oval granules, and not as forming a homogeneous substance, such as is commonly described. In some specimens of bone, the spherical form of granules, in others the oval, predominate; often a few will be found which are egg-shaped, with the

* Müller's Archiv, Heft 5, 1845, p. 419. † Brit. and For. Med. Rev. April 1846,
‡ Tijdschr, voor Naturl. Geschied. en Physiol. p. xii. § London Med. Gaz. Jan. 30, 1846. ‖ Cyclop. of Anat. and Phys., art. "Osseous Tissue," p. 848, March 1846.

smaller end slightly elongated. For the purpose of examining this granular tissue a portion of a very thin lamina of bone, or a spicula from a point where ossification is going on, should be selected; to see it well, high magnifying powers are required.

8. *Haversian Canals.*—Mr. Tomes* inclines to the opinion that the large haversian canals which traverse the substance of bone, giving off branches in various directions, give passage to one vessel only, which is the artery; the venous blood being returned from the substance of the bone, not by venous trunks traversing the canals in company with the arteries, but by minute vessels, which emerge from the surface of the bone as capillaries.

9. *Corpuscles of Bone.*—Mr. John Quekett† has found amongst other characters in the minute structure of bone peculiar to each great class in the animal kingdom, that the bone corpuscles are the smallest in birds, a little larger in mammalia, and largest of all in reptiles. In fishes the corpuscles are best distinguished by their great dissimilarity to those in the bones of either of the three preceding classes. He observes also that the size of the bone corpuscles is the same in all animals of the same class, and bears no relation to the size of the animal itself, the corpuscles of the horse and ox, for instance, being no larger than those of the mouse.

10. *Skin, Sudoriferous Glands of.*—M. Robin‡ has described the existence of a third and peculiar kind of sudoriferous glands, larger than any hitherto mentioned, situated in the subcutaneous adipose tissue of the axilla; also, though less abundantly, in the fold of the groin. In structure, each of these glands consists of a simple tube, terminated in a cul-de-sac, curled on itself, so as to form a small lobule of about a millimeter in diameter. From this lobule springs a minute canal or duct, which, however, does not run in a spinal direction like the duct of an ordinary sweat-gland. Sometimes these glands are congregated in groups of two or three, visible to the naked eye, in the form of minute granulations, having a reddish tint. Although analogous in structure to ordinary sweat-glands, yet they differ from them in size, and probably also in the nature of their secretion, for it seems most probable that it is the function of these glands to secrete a fluid which gives to the sweat of these parts its great acidity and peculiar odour. The existence of these glands was also made known by Professor Horner, in an American journal,|| almost at the same time that M. Robin's description appeared. The account which Professor Horner gives of these glands does not materially differ from that of M. Robin, and both anatomists agree as to the probable function which they perform. Professor Horner purposes to name them the *glandulæ odoriferæ* of the axilla. He found them especially developed in a black subject, in whom he first discovered their existence; the strong odour

* L. c. p. 850.

† London Medical Gazette, April 17, 1846, from proceedings of Microsc. Society. Mr. Tomes gives a very excellent account of the bone corpuscles, as indeed of the osseous tissue generally, in his paper above quoted from; and in his lectures on Dental Physiology and Surgery, published in the Medical Gazette (commencing Nov. 14, 1845), he furnishes a clear and concise account of the minute structure, development, and other anatomical peculiarities of the teeth. On the subject of the teeth, M. Talma (Encyclo. des Sciences Méd. Sept. 1845) has communicated a paper, chiefly with the view of showing the pernicious influence exerted on these organs by mercurial preparations used as cement. Further communications in regard to the growth and reproduction of bones have been furnished by M. Flourens (Comptes Rendus, Dec. 8, 1845), and by MM. Brullé and Rugenny, in a long paper published in the Annales des Sciences Naturelles, Nov. 1845, an abstract of which is given in the Gazette Méd. Nov. 15, 1845.

‡ Gaz. Méd. Sept. 13, 1845. § Amer. Jour. of the Med. Sciences, Jan. 1846.

of the axillary perspiration of negroes furnishes additional grounds for supposing the function of these glands to be such as above mentioned.

11. *Ciliary Movement.*—Purkinje and Valentin denied that the ciliary movement was accelerated by heat and retarded by cold, but from experiments made on the epithelial cells of the nasal mucous membrane of man, E. H. Weber* has proved that these vibratile movements are diminished almost to one half their usual rate by cold, and are sensibly increased by heat. This influence of heat and cold is less manifest on the cilia of cold-blooded animals. Both in their rhythmic character, therefore, as well as in being thus influenced by heat and cold, the ciliary movements are analogous to those of the heart; moreover there is an equally marked similarity between them in regard to their long continuance after death, for although Purkinje and Valentin noticed the ciliary movement in a tortoise to last many days after death, and even after putrefaction had commenced,—a circumstance which seemed to show that the ciliary movements and those of the heart proceeded from totally different causes,—yet Weber has also seen the auricle of a frog's heart contracting for sixty hours, although it was removed from the body, separated from the ventricle, and the blood in which it was placed had become putrid before the movements ceased. He found also during the experiment, that the pulsations were retarded by cold and accelerated by heat. The influence of heat and cold on the movements of the heart is less in cold than in warm-blooded animals, nevertheless, in the former animals this influence is much more marked on the rhythmic movements of the heart than on those of the cilia.

Ludwig,† who, in common with Bowman, Valentin, and others, has frequently observed ciliary movements of the epithelium lining the upper part of the urinary tubules of the kidney in frogs, states that when he has examined the kidney just after the frog is roused from its winter sleep, he has never been able to detect any ciliary movement, although the epithelium lining the tubes would seem, from its full development, at this time to be in the best state for giving rise to it.‡

## § II.—*The Blood.*

12. *Corpuscles.*—Professor Owen § has examined the blood-corpuscles of the Echidna (ornithorhynchus Hystrix), and confirms the account which Hobson‖ gave of them. They possess the true mammalian type, in their number, form, and size, as well as in their florid red colour; they are circular flattened discs, averaging about 3200th of an inch in diameter.

MM. Lebert and Robin ¶ having examined the blood of many molluscs, ascidians, and crustaceans, describe the existence of corpuscles in the clear colourless blood of all these animals; these corpuscles bear a much smaller proportion to the rest of the blood than in vertebrate animals. In the blood of molluscs, the corpuscles are in general round, somewhat flattened, and of a pale grayish-white, rarely yellowish, colour; they possess in their interior

* Archives d'Anat. et de Physiol. Jan. 1846. † Wagner's Handwörterbuch der Physiologie, 1845, art. Nerven.

‡ The further publication of Professor's Sharpey's labours in another part of the new edition of Quain's Anatomy, part xxvi of the Cyclopædia of Anatomy and Physiology, and Dr. Carpenter's Manual of Physiology, must be regarded as valuable and important contributions to the anatomy of the tissues during the period comprised by the present Report, and as adding to the stores of anatomical and physiological literature generally.

§ Proceedings of Zoolog. Soc. in London Med. Gaz. Jan. 30, 1846. ‖ Half-Yearly Abstract, vol. i, p. 252. ¶ Müller's Archiv, Heft ii, 1846, p. 121.

one or sometimes two nuclei, between which and the cell-wall a certain quantity of granular matter is contained.

The results of Mr. Gulliver's highly interesting observations on the sizes of the red corpuscles of vertebrate animals, which have appeared from time to time, are republished in a condensed form, together with a table containing the measurements of these corpuscles in nearly 500 species of the vertebrata.*

13. *Blood, its Capacity of Organization.*—The fact that blood possesses the power of becoming organized and developing itself into tissue (as Mr. Hunter maintained), when left at rest either within or without a vessel, just as does simple fibrine, is quite proved by the observations of Dr. Zwicky,† on the metamorphoses of the thrombus, or clot of blood which forms in a vessel above a part at which it is tied. He furnishes microscopic evidence of the metamorphosis of the fibrine of the blood into fibro-cellular tissue, and of the development of blood-vessels within it.

14. *Menstrual Blood.*—It has been discussed in the Paris Academy of Medicine,‡ whether it be possible by any microscopic or chemical method to distinguish between menstrual blood and blood discharged during childbirth. The question is one of considerable importance, especially in relation to cases of suspected abortion or infanticide, but, unfortunately, as the result of the discussion proved, no such distinction can at present be made.§

## § III.—*Circulation.*

15. *Forces concerned in the Circulation.*—Professor Draper,‖ in an interesting paper, has enlarged upon his favorite view, that the chemical changes which the blood and other circulating fluids undergo are the true causes of their flow, whilst an opposite view has been advanced by M. Guettet,¶ who explains the cause of the circulation of the blood entirely on hydraulic principles; no doubt both forces are concerned in carrying on the circulation, though the main share of duty is taken by the mechanical one.

16. *Heart: Peculiarities of its Action.*—MM. E. and E. H. Weber** state that when, by means of the rotating magnet, they irritated in a frog the spinal cord, or the vagi nerves divided at their origin, the heart was at once and completely deprived of motion, and this not because of tetanic contraction of the organ, for the heart was flattened and its fibres completely relaxed. When the irritation was withdrawn, the heart in a short time resumed its pulsations, at first slowly, but by degrees it attained its former rate of rapidity. When the rotation of the machine was not very rapid, the heart's movements were merely retarded and weakened. If the stimulus was continued so long as to exhaust the irritability of the heart, its pulsations recommenced. The irritation of one nervous vagus alone, effected no change in the action of the heart. Volkmann,†† however, observed that when the spinal cord was irritated by the rotating magnet, the movements of the heart were not arrested unless the power of the machine was very great; most commonly the movements were only retarded, sometimes even accelerated, (as observed by Dr. Reid). By

* Proceedings of the Zoolog. Society, No. clii, Oct. 14, 1845, and Annals of Nat. Hist. March 1846. † Die Metamorphose des Thrombus, 4to, 1845. Paget's Report in Brit. and For. Med. Rev. April 1846. ‡ Bulletin de l'Acad. Roy. de Méd. Jan. 1846. § On the subject of the blood, reference may be made to a recent work published by Professor Wunderlich, entitled 'Pathologische Physiologie des Blutes;' it contains a summary of the most recent views, relating chiefly to the pathology of the blood. ‖ Philosophical Mag. March 1846. ¶ Note of memoir presented to the Paris Acad. of Sciences in Compte Rendus, Jan. 19, 1846, p. 126; also Gaz. Méd. 24 Jan. 1846. ** Archives d'Anat. Génér. et de Physiol. Jan. 1846. †† Müller's Archiv, Heft v, 1845, p. 415.

irritating the vagus in recently-slain animals, he observed no movements of the heart to result. Dr. J. Reid* also observes, that although he has repeatedly irritated the nervi vagi after death, yet he has never been able to satisfy himself that this irritation has any effect in renewing or increasing the contractions of the heart. After destruction of the brain and spinal cord, and exposure of the still pulsating heart in frogs, Volkmann† found, on applying the wires of the rotating magnet to the side of the ventricle, that the pulsations of this cavity ceased, and its walls were thrown into a state of rigid contraction,‡ the auricle meanwhile continuing to contract pretty regularly. When the auricle was irritated instead of the ventricle, it became contracted and motionless, whilst the ventricle continued to pulsate. When the walls of both cavities were included within the electric stream, the entire organ was thrown into a state of rigidity, being drawn up towards the base, assuming a pointed form, and becoming small and pale; usually the contraction ceased upon withdrawal of the irritation, but if the machine was very powerful, the organ remained contracted for some time after removal of the stimulus, the auricle in this case being the first to resume its pulsations. Almost similar results were obtained by experimenting on the hearts of different mammalia. When slips of the heart were cut off and irritated by the direct application of the machine to them, they contracted at once; but, as in case of the heart itself, the contraction ceased immediately on withdrawal of the stimulus. From these facts Volkmann concludes that the nerves of the heart (like those of the stomach and intestines) are derived neither from the brain nor from the spinal cord, but that the movements of this organ depend upon the central organs or ganglia and the nerve-fibres contained within itself; whilst *centripetal* fibres of these ganglia are found in the vagus, sympathetic, and in the spinal cord.§

Volkmann‖ gives the results of some experiments made to determine the duration of the several sounds and intervals of the heart. By means of a seconds'-pendulum, the oscillations of which could be regulated at pleasure, he found that the interval between the first and second sound bore to that between the second and the next first sound the ratio of 96 : 100; the intervals were, therefore, almost equal, although in the ordinary way of examining the heart this does not appear to be the case, the two sounds following each other in quick succession, and being then succeeded by a short interval. The results obtained by this ordinary method of examination, however, he considers to be deceptive.

17. *Continuance of Heart's Irritability after Death.*—Mr. Tod¶ notices the long continuance of the heart's irritability after death in very young chicks; the heart retaining its power of contraction when pricked, five hours after death by drowning, in a chick two days old. The amount of contraction was greater in the auricles than in the ventricles, and in the systemic auricle and ventricle, than in the pulmonic ones. Fourteen hours after death the ventricles had quite lost their irritability, but the auricles retained theirs in a slight degree.

* Cyclop. of Anat. and Physiol., art. Par Vagum, March, 1846. † L. c. p. 417.

‡ The cessation of the heart's action through rigid contraction, upon applying the wires of the magnetic apparatus to the substance of the organ, was observed also by the Webers (Archives d'Anat. Gén. et de Physiol. Jan. 1846).

§ For other evidence adduced by Volkmann to show that the nervous centres, or ganglia of the heart, furnish all the motor impulse to the action of the organ, and to prove its independence of the brain and spinal cord, see Müller's Archiv, 1844, p. 424.

‖ Schmidt's Jahrbucher, No. 1, 1846, p. 5. ¶ Lancet, April 11, 1846.

## § IV.—*Respiration and Animal Heat.*

18. *Respiration.*—A very ingenious experiment, analogous to those of Dr. C. J. B. Williams, has been performed by Volkmann,* to prove the influence of the pneumogastic nerves on the bronchial tubes. "He tied a glass tube, drawn fine at one end, into the trachea of a beheaded animal, and when the small end was turned to the flame of a candle, he galvanized the pneumogastic trunk; every time he did so the flame was blown, and once it was blown out. The experiment succeeded even when the chest was opened; but the lungs having then collapsed, the efflations were slighter. The movements following the irritation were pulse-like."†

With the exception of Volkmann's observations in the essay just quoted from, and a paper by Mr. Hutchinson, there has been nothing of particular interest written on the mechanical part of respiration; the chemistry of the process, as well as of animal heat, is treated of elsewhere.‡

19. *Temperature of Children.*—The results of further researches on the temperature of children in health and disease have been offered by M. Roger.§ They contain but little of physiological interest. He finds that at the moment of birth children have a temperature higher than they afterwards possess, and higher than the mean temperature of adults; a circumstance which might be expected, and which is manifestly attributable to the warmth of the medium from which they have just emerged; he found, indeed, in most cases, that the temperature of the child's axilla was almost identical with that of the cavity of the uterus immediately after delivery.

20. *Effects of Bleeding on the Temperature of the Body.*—Nasse|| has performed numerous experiments upon dogs, rabbits, and other animals, to determine the effect of abstraction of blood upon the animal temperature, and found that within certain limits, the temperature, instead of being diminished, was sensibly increased by bleeding; a circumstance which is unfavorable to the theory of Prévost and Dumas, who state that the temperature of animals is directly proportionate to the number of their blood-corpuscles. Nasse explains the increase of temperature resulting from abstraction of blood by the circumstance that the processes of respiration and circulation are thereby much accelerated; that the power of absorption possessed by the vessels is much increased, the stores of fat being thus rapidly absorbed and consumed as fuel; and lastly, that all the watery secretions are at once diminished, and so a considerable loss of heat avoided.

21. *Post-mortem Heat.*—The details of a remarkable case, relating to post-mortem heat, have been given by Dr. Düsterberg.¶ The subject was a middle-aged man, who died suddenly of apoplexy. Three days after death, and when putrefaction was considerably advanced, the surface of the body became very remarkably hot, the temperature rising to 101° F., whilst that of the chamber in which the body lay was only 70 F.**

* Wagner's Handwörterbuch, art. Nerven Physiol. p. 586. † Paget's Report, p. 15. ‡ Mr. Hutchinson's paper will be noticed in next Report, an abstract only of it having yet appeared. § Archives Générales de Médecine, Nov. 1845. || Med. Times, April 11, 1845. ¶ Casper's Wochenschrift, April 4, 1846.

** In our last Report allusion was made to some remarkable observations of Dr. Dowler in regard to the development of heat in the animal body after death; it may be fair to Dr. Dowler to state that Dr. John Day, who also noticed the great heat of some bodies after death, regarded this not as a post-mortem effect, but as having been generated during life; whereas Dr. Dowler states, that in his cases the rise in temperature commenced after the cessation of life.

## § V.—*Digestion.*

22. *Œsophagus.*—That the œsophageal branches of the vagus nerve are chiefly incident or motor is maintained by Dr. J. Reid,* and confirmed by some recent experiments by Volkmann.† Upon laying bare the œsophagus in dogs and cats, and irritating the root of the vagus by means of the rotating magnet, Volkmann observed the œsophagus to be thrown into a state of continued contraction, which lasted as long as the stimulus was applied, and ceased upon its withdrawal; during contraction the tube became shortened, hard, and narrow, and remained perfectly motionless; behaving, therefore, like a voluntary muscle when irritated by the direct application of a stimulus to the trunk of the motor nerve.‡ When the cervical portion of the spinal cord was irritated by the magnet, although almost all the voluntary muscles in the body were excited to contraction thereby, yet the œsophagus was not affected, proving that the contraction of this tube does not depend on the cervical nerves.

23. *Movements of the Stomach and Intestines.*—Upon irritating the vagus nerve in the neck, with the rotating magnet, Volkmann§ observed contraction of the stomach to ensue; these, however, were of a different kind to those excited in the œsophagus, the organ being thrown into a state of tumultuous movement. A similar effect was produced by irritating the sympathetic in the chest; the peristaltic movements of the intestines also were in this case rendered more active. Removal of the brain and spinal cord did not interfere with these results; therefore, the movements were independent of these nervous centres. When the electric stimulus was applied directly either to the stomach or intestines, the part irritated became constricted and remained in a state of continued contraction. In accordance with his views on the varieties of muscular action already mentioned,|| Volkmann explains these different modes of contraction, by considering that the stomach and intestinal canal (as well as the heart) contains each within itself its own nervous centres, and that when the stomach is excited to movement by irritation of the vagus or sympathetic, it is the result of a reflected action, and not because either of these nerves contain any *motor* fibres belonging to the stomach; the fibres which they do contain being *centripetal;* the continued contraction, on the other hand, which follows the application of the stimulus to the substance of the organ itself, result from the *direct* irritation of its nerves; the same explanation applies also to the movements of the intestines.

24. *Action of the Stomach during Vomiting.*—M. Rühle¶ has performed many experiments on dogs, with the view of determining the nature and relative amount of the forces concerned in the act of vomiting, but especially of ascertaining how much, if any, share is taken by the stomach itself. This disputed question concerning the agency of the stomach in vomiting would seem of late to have been settled, and it has been generally admitted that a certain amount of contraction of the walls of this organ does accompany the act of vomiting. M. Rühle, however, ventures again to deny this, and asserts, as Magendie did, that the organ is entirely passive during vomiting. The correctness of his assertion, however, may fairly be questioned, inasmuch as (besides other evidence) cases have occurred in which, during vomiting, the stomach has been seen actively con-

* Cyclop. of Anat. and Physiol., art. Par Vagum, March, 1846. † Muller's Archiv, Heft v, 1846, p. 411. ‡ See Volkmann's account of the different modes of muscular contraction, above mentioned, page 277. § Muller's Archiv, Heft v, 1845. || See page 277. ¶ Beiträge zur Experimentellen Pathol. und Physiol. Berlin, 1846.

tracting. An opinion favorable to the view of the activity of the stomach is also maintained by M. Adelon* in a recent paper on the subject.

25. *Digestive Powers of the Stomach.*—An account of the condition of the internal surface of the stomach under various circumstances, derived from examining this organ by means of M. Blondlot's method, which consisted in maintaining for a considerable time an artificial opening into the stomach of a dog, has been published by M. Bernard.† This account is not much more than a repetition of the results obtained and made known by M. Blondlot,‡ most of which, as well as the facts stated by Dr. Beaumont, are here confirmed. Thus, M. Bernard found that during fasting the mucous membrane of the stomach is pallid, folded on itself, contains but little blood, and is coated with a thin layer of neutral or slightly alkaline mucus; but directly upon the introduction of any foreign matters, especially digestible ones, into the stomach, its mucous membrane becomes turgid with blood, assumes a more marked degree of sensibility, and the layer of mucus is detached, being displaced by an abundant flow of acid gastric fluid; at the same time manifest movement of the stomach itself takes place. This flow of gastric or digestive fluid, which only takes place when its secretion is solicited by the presence of food, or of some mechanical or chemical irritation, may be influenced by many circumstances. Thus M. Bernard found that although, as was observed by Blondlot, a slight mechanical irritation applied directly to the mucous surface of the stomach excites at once an abundant flow of gastric fluid, yet if this irritation be carried beyond certain limits, so as to produce pain, the secretion, instead of being more abundant, diminishes or ceases entirely, whilst a ropy mucus is poured out instead, and the movements of the stomach are considerably increased; the animal, at the same time appears ill at ease, is agitated, has nausea, and, if the irritation be continued, actual vomiting. Bernard has often, in such cases, observed bile flow into the stomach, and escape through the fistulous opening. He has also found similar disorders of the functions of the stomach to result from violent pain in other parts of the body; the process of digestion in such cases being suspended, and sometimes vomiting excited. When acidulated substances, as food rendered acid by the addition of a little vinegar, were introduced into the stomach, the quantity of gastric fluid poured out was much smaller, and the digestive process consequently slower, than when similar food, rendered alkaline by a weak solution of carbonate of soda, was introduced; this effect of alkalies in increasing the secretion of gastric fluid was noticed also by M. Blondlot. If, however, instead of a weak alkaline solution, carbonate of soda, in crystal or in powder, was introduced into the stomach, a large quantity of mucus and bile, instead of gastric fluid, flowed into the stomach, and very often was succeeded by vomiting and purging. When very cold water or small pieces of ice were introduced into the stomach the mucous membrane was at first rendered very pallid, but soon a kind of reaction followed, the membrane became turgid with blood, and a large quantity of gastric fluid was secreted. If, however, too much ice was employed, the animal appeared ill, shivered, and digestion, instead of being rendered more active, was retarded. Moderate heat applied to the mucous surface of the stomach seemed to have no particular action on digestion, but a high degree of heat produced most fatal effects; thus the introduction of a little boiling water threw the animal at once into a kind of adynamic state, which was followed by death in three or four hours; the mucous membrane of the

* Diction. de Méd. tom. xxx, 1846, art. "Vomissement." † Archiv. d'Anat. Gén. et de Physiol. Janvier, 1846, p. 3. ‡ Traité Anal. de la Digestion, 8vo, Paris, 1844.

stomach was found red and swollen, whilst an abundant exudation of blackish blood had taken place into the cavity of the organ. Like injurious effects, to a greater or less degree, followed an introduction of other irritants, such as nitrate of silver or ammonia, the digestive functions being at once abolished, and the mucous surface of the organ rendered highly sensitive.

26. *Influence of the Nervous Vagus on Digestion.*—M. Bernard* mentions the results of the following experiment as affording additional proof that division of the nervi vagi causes an arrest, if not a complete cessation, of the process of digestion. Having taken two rabbits which had been kept fasting for thirty-six hours, and whose urine was clear and acid, he gave them a meal of carrots, and two hours after found that their urine had become turbid and alkaline, the effect evidently of digestion; he now divided both nervi vagi in one of the rabbits, and the urine almost immediately resumed its clear and acid quality, such as it had during the previous fasting, whilst in the other rabbit, whose nervi vagi were left undivided, the urine retained its turbid, alkaline character during the whole time that digestion lasted, which was eighteen or twenty hours at the least.

27. *Structure of the Liver.*—Much discussion has of late taken place as to whether the liver in its minute anatomy is really arranged in lobuli as described by Malpighi, Sœmerring, and still more recently and elaborately by Kiernan; that is, whether the organ be made up of an aggregate of similar elementary parts, each one of which is fully endowed with the same power of secreting bile as is possessed by the whole, or it be composed of a mass in which no such elementary or lobular arrangement can be distinguished. Each view ranks on its side the names of good anatomists, though the preponderance of opinion inclines to the former and hitherto undisputed one, that, namely, which attributes a lobular structure to this organ. In an elaborate paper on the liver, Professor Theile† discusses this point at considerable length; his views are well expressed by Mr. Paget,‡ who observes: "He confirms Mr. Kiernan's account of its lobular structure; for though he admits that the investment of each lobule, which is so dense in the pig and some other animals, may be absent or very thin in the human liver, yet he urges, and very rightly, that the latter is, by the arrangement of its vessels, divided into lobules just like those of the pig and others. For in the human liver, as in theirs, each portion thus bounded by vessels, if not by a distinct capsule, is a miniature liver, having in itself a complete bile-secreting apparatus." A similar view is also maintained by Krause,§ who has published some further observations on the minute structure of the liver, chiefly with the view of confirming the account he gave in 1837,‖ wherein he described the ultimate ramifications of the bile-ducts as terminating in acini, an arrangement similar to that of the ducts in the salivary, mammary, and other secretory glands. This view, although by no means generally adopted, Krause still maintains, and strengthens it by the results of numerous injections and microscopic examinations of the liver of hedgehogs (in which animals injections of the liver best succeed) as well as of new-born children. After a successful injection, the reticular arrangement of the minute bile-ducts described by E. H. Weber become very apparent, as also, according to Krause, a number of acini which,

* Gazette des Hôpitaux, Avril 2, 1846, from Memoir presented to the Paris Academy of Sciences March 23. The same memoir contains the interesting results of M. Bernard's further researches on the 'Chemistry of Digestion,' but as these belong to the subject of animal chemistry they are not noticed here. † Wagner's Handworterbuch der Physiologie, 1845, art. "Leber," p. 321. ‡ Report on Anatomy and Physiology, Brit. and For. Med. Rev. April, 1846, p. 559. § Muller's Archiv, Heft v, 1845, p. 524. ‖ Ibid. p. 1837.

filled with injection substance, appear as tolerably regular, roundish, or oblong vesicles, averaging about $\frac{1}{60}$ of a line in diameter. After dissolving out the injection substance from a section of such prepared liver, he states that the cavities of these vesicles with their thin walls become very perceptible. He observes also that these acini may be perceived, independent of injection, on the cut surface of very thin sections of the liver in man and other animals; they are especially evident at the edges of the section, and appear as small grayish-yellow bodies of a round or slightly oval form, and of a tolerably regular size, averaging from $\frac{1}{65}$ to $\frac{1}{54}$ of a line. When examined with high powers these bodies are seen to be surrounded by fine short fibrillæ of fibro-cellular tissue, and each to contain six or eight hepatic cells, together with, in many cases, a brownish-yellow fluid, apparently bile. He states also that probably from each minute lobule proceed several bile-ducts, each one of which originates from a group of acini situated at its extremity; so that each lobule is composed of several such groups with their respective bile-ducts.

28. *Glands of the Biliary-ducts.*—M. Theile has given a minute account of these bodies.* He has examined them in the bile-ducts of the human liver, as well as those of the horse, sheep, and pig; in the three latter animals their structure and arrangement is identical; they form small roundish clusters projecting from the mucous membrane lining the canal, and open into the cavity of the duct at all parts of its circumference; they are especially well seen in the bile-ducts of the pig.

In man the arrangement of these glands is peculiar, as well as their structure more complex; as pointed out by Mr. Kiernan, their orifices do not occur at all parts of the circumference of the duct, as is the case in the animals just mentioned, but are arranged in two opposite rows merely. For Theile's account of the structure of these bodies in the human liver, Mr. Paget's words again may be borrowed. "They generally consist of an elongated tortuous canal; bearing alternate small sacculi and pediculated bunches of cellules; reminding one of the Meibomian glands. These canals, moreover, branch, and their branches anastomose with one another, and with those of the adjacent glands. Such a net-like connexion of the gland-canals occurs within the Glisson's capsule, investing the larger and middle-sized hepatic ducts; but it is most remarkably developed in the transverse fissure of the liver. Here, after the duct has been well injected, red streaks forming plexuses can be seen, which are nothing but large examples of these glands. The canal-shaped glands in this situation are a quarter of a line in diameter (in other parts they are from one fifth to one tenth); their walls are beset by pouches and bundles of sacculi, some of which are one sixth of a line in diameter, and there open into them at short intervals elongated glandules, just like those found in the prolongations of Glisson's capsule, except in that they do not open directly into the hepatic duct."† In the ductus hepaticus and chloledochus the orifices of the glands are no longer arranged in two opposite rows, but occur along the entire circumference of the canal, being very large and apparent. The glands in this situation resemble the large compound ones just described, in so far as having simple elongated glandules situated along their canals. Yet, two, three, or four of such glands open into the bile-duct by the same orifice, and there appears to be here no net-like connexion of the gland-canals. Similar glands are found also in the lower part of the cystic duct, yet Theile has not hitherto been able to detect any such in the upper part of this duct, or in the gall-bladder.‡

* L. c. p. 349. † Brit. and For. Med. Rev. April 1846, p. 559.

‡ In this and the preceding Reports no allusion is made to the chemistry of the digestive organs or fluids, the whole subject, in common with that of the other chemical processes in the body, belonging to the department of animal chemistry.

## § VI.—*Lymphatic and Lacteal Absorption.*

29. *Absorption of Narcotic Substances by the Lymphatics.*—It has been stated by Emmert, Behr, and others, from the results of experiments, that the lymphatic vessels either do not absorb narcotic poisons at all, or to so slight an extent, that no poisonous effects are produced. Henle explains this by considering that narcotic substances in solution are certainly received into the lymphatics by the process of endosmose, but that the walls of the vessels are at once paralysed thereby, and rendered unable to propel the poisonous solution onwards. Bischoff*, however, has recently performed some experiments on dogs, the results of which would seem to show that narcotic poisons are really taken up by the lymphatics, conveyed by them into the blood, and exert their poisonous effects on the system. Having tied the abdominal aorta below the origin of the renal artery, he inserted into a wound of the leg a strong solution formed of equal parts of nitrate of strychnia and ferro-cyanide of potassium; in half an hour symptoms of narcotism ensued, and the animal died shortly after in a state of tetanus. Ferro-cyanide of potassium was detected in the urine, in the clear watery lymph obtained from the lymphatics between the wound and the aorta, but not in the blood. This experiment proves that ferro-cyanide of potassium, even though contained in a solution with strychnia, may be absorbed by the lymphatics, conveyed by them into the blood, and eliminated by the kidneys; that the strychnia itself must also have been absorbed by the lymphatics, unless we can suppose it to have got into the blood through some collateral circulation after tying the aorta; and that a substance may be found in the urine, although it cannot be detected in the blood.

30. *Lymphatic Hearts.*—Volkmann† has proved that the rhythmical movements of the lymphatic hearts of frogs (unlike those of the blood-heart) depend on the direct influence of portions of the spinal cord. Thus they cease at once, owing to being thrown into a state of rigid contraction, when the spinal cord is stimulated by the rotating magnet, while those of the heart continue uninterrupted; they also cease the moment the cord is destroyed, whilst those of the heart continue for many hours afterwards. The action of the lymphatic hearts also continues after division of the posterior roots of the spinal nerves, but not of the anterior roots. All these circumstances prove that these movements are not reflex, and that the motor nerves of the lymphatic hearts proceed direct from the spinal cord, whilst those of the blood-heart do not. He found also that the anterior lymphatic hearts derive their motor influence from the portion of cord corresponding to about the third vertebra, the posterior ones theirs from the portion of cord about opposite the eighth vertebra; for so long as these portions were left uninjured, even though the remainder of the cord was destroyed, the movements of the heart continued; but upon destroying either of these portions, even though the rest of the cord was left uninjured, the movements of the corresponding heart ceased.

31. *Absorption of Chyle.*—E. H. Weber‡ observes that the absorption of chyle in the intestines takes place first into the epithelial cells covering the villi, which, at a certain period of digestion, are found swollen and filled with chyle-globules, and from which the chyle is transferred into the proper cells of the villi, to be by them conveyed to the lacteal vessels. He also observes, that during digestion there are often found in the intestinal villi of man two

* Schmidt's Jahrbucher, No. iv, 1846, page 6. † Müller's Archiv, Heft v, 1845, p. 427, and Heft iv, 1844; also Wagner's Handwörterbuch, art. 'Nerven Physiologie,' 1845, p. 489. ‡ Archives d'Anat. Générale et de Physiol. Janvier, 1846.

peculiarly large cells, filled with chyle, which in one of the cells is opaque and white, in the other transparent and fatty; these two cells are in close contact with each other. The fatty globules which are found in chyle he describes as being exactly analogous in size and colour to the fatty globules observed in lymphatic vessels.

## § VII.—*Kidneys and their Secretion.*

32. *Kidneys, minute Anatomy of.*—The minute anatomy of the kidney has received considerable attention during the last few months, and the result is the appearance of several interesting papers on the subject. The most important of these is one by Dr. Bidder,* of Dorpat. Having examined the kidneys of tritons, (which animals are especially well adapted to the investigation, inasmuch as from the natural form of the kidney they can be examined at once by the microscope, without undergoing any artificial preparation, which generally destroys the natural arrangement of parts,) he has obtained results which on the whole confirm the accuracy of Mr. Bowman's observations, although they differ in one important particular. According to Mr. Bowman's account, the tuft of vessels composing each Malpighian body lies free and uncovered within the cavity of the dilated extremity of the urinary tubule, which forms a kind of capsule to it; Bidder, however, states that the tuft of vessels is in reality quite external to the cavity, being separated from it by the tunica propria of the dilated extremity of the urinary tubule; this membrane, therefore, according to him, is not perforated by the artery and vein supplying the tuft, as stated by Mr. Bowman, but by its external surface reflected over the tuft which projects into the cavity of the tubule, carrying the membrane before it, just as an organ (say the heart), covered on its external surface by serous membrane, projects into the cavity of the serous sac (or pericardium). The Malpighian tuft, thus invested, occupies sometimes half, sometimes much less, of the cavity of the dilated portion of the tubule, and at first sight appears exactly as if lying free and uncovered within it, but that it is really external to the cavity (at least in tritons) Bidder quite convinced himself, and he states that he has sometimes succeeded in separating the vascular tuft from the extremity of the urinary tubule, yet without the cavity of the latter being opened, or any of its fluid granular contents escaping. He says that one third or one half of the internal surface, as well as the neck of the capsule, bears ciliary epithelium (as noticed by Bowman in the kidneys of frogs), and that the remainder of the cavity is lined by a layer of fine tesselated epithelium, the cells of which have a tolerably regular polygonal form. Although commonly each tubule is in relation with its own tuft, yet sometimes one tuft is common to two tubules, or, what Bidder seems to think more probable, the dilated part where the tuft comes into relation with the tubules, is not the joint extremities of two, but a pouch-like dilatation at the side of one tubule; he thus, to a certain extent, confirms the observations of Gerlach† on this point.

Ludwig‡ having also examined the minute anatomy of the kidney in many mammalia and amphibia, observes that the mode of termination of the urinary tubules described by Bowman may be very distinctly seen in the kidney of the coluber, and that in the other amphibia examined by him, and in mammalia, such an arrangement of the terminal extremities of the tubules appeared

* Müller's Archiv, Heft v, 1845. † Last Report, p. 308. ‡ Wagner's Handwörterbuch der Physiologie, art. 'Nieren,' p. 630.

probable, though he was not able clearly to make it out; whilst in some few it did not seem to exist.

The subject has also received a valuable contribution from Kölliker,* who details the results of his examinations of the kidneys of fœtal lizards. He confirms Bowman's account so far as concerns the structure of the urinary tubules, and the close connexion between the extremities of these tubules and the Malpighian bodies, yet he agrees with Bidder, Gerlach, and others, in denying that these vascular tufts lie bare within the cavity of the dilated portion of the tubules. Although he does not recognize the existence of the membranous partition between the tuft and the cavity, described by Bidder, yet he states that the cavity is freely lined, as also is the surface of the vascular tuft covered, by an abundance of epithelium, so that the tuft lies imbedded in a mass of epithelial cells (as described by Gerlach).† He mentions that in the kidneys of the animals (lizards) which he examined, ciliary epithelium, in a state of active movement, was present along the whole length of the urinary tubules, with the exception of at their exit from the gland, and just where they dilated into their terminal extremities within the substance of the organ.‡

33. *Urinary Bladder, muscular Action of.*—The dependence of the muscular coat of the urinary bladder upon the spinal cord, for a portion at least of its direct motor influence, was proved by Volkmann,§ who, upon exposing the bladder in dogs, and stimulating the spinal cord by means of the rotating magnet, observed the walls of the viscus slowly but distinctly contract, until its size was reduced to that of a walnut; this contraction continued for some time after withdrawal of the stimulus. When the organ was stimulated by the direct application of the wires of the magnet to its walls, it became still more strongly contracted, and remained so after the removal of the stimulus. In frogs, however, he was never able to induce contraction of the bladder, by stimulating either the spinal cord or the organ itself.

## § VIII.—*Nervous System.*

34. *Brain, Absence of the Corpus Callosum.*—Mr. Paget|| has furnished the particulars of a case in which the middle portion of the fornix and the whole of the septum lucidum were absent, and in which, in place of the corpus callosum, there was only a thin fasciculated layer of white nervous matter, 1·4 inch in length, but of which the fibres extended into all those parts of the brain into which those of the healthy corpus callosum can be traced. Behind the imperfect corpus callosum, the optic thalami, the middle commissure (which was very large), the posterior commissure, and the pineal gland lay exposed after removal of the velum. The lateral parts of the fornix and the rest of the brain were quite healthy. The patient was a servant girl who died of pericarditis. She had displayed during life nothing very remarkable in her mental condition beyond a peculiar want of forethought and power of

* Müller's Archiv, No. 5, 1845. † Last Report, p. 309.

‡ The high interest of the above papers must be the excuse for the length at which they have been noticed. They contain much other valuable matter, which it did not appear necessary to notice here, but which will well repay a careful perusal. [Since the above was written, M. Hyrtl, in a strange paper on the 'Physiology of the Urinary Secretion,' (translated in the Medical Times, April 4, 1846), denies absolutely the existence of any connexion between the Malpighian body or the capsule covering it, and the extremity or any part of the urinary tubule.]

§ Müller's Archiv, Heft v, 1845, p. 419. || Trans. of the Med. Chirur. Soc., Med. Times, March 21, 1846.

judging of the probable event of things. Her memory was good, and she possessed as much ordinary knowledge as is commonly acquired by persons in her rank of life. She was of good moral character, trustworthy, and fully competent to all the duties of her station, although somewhat heedless; her temper was good, and disposition cheerful. From these facts Mr. Paget is inclined to regard the functions of the corpus callosum as connected with the highest operations of the mind, especially as in the few cases in which it has been found deficient, or altogether absent, the mind has possessed a moderate average power and capacity for knowledge, and all the lower functions of the nervous system have been perfectly discharged.

35. *Development of the Cerebral Hemispheres.*—Retzius* states that the cerebral hemispheres are not developed at once, but at three distinct periods. The anterior lobes are formed during the first period, which is from the second to the third month of fœtal life; the middle part during the second period, which is comprised between the end of the third and the beginning of the fifth month; whilst the posterior lobes are formed last. The inferior horns of the lateral ventricles and the hippocampi do not appear until the second period; at this period also the optic laminæ make their appearance, and then come the tubercula quadragemina. In making a comparative examination of the brain of man and of many animals in their different embryological states, M. Retzius finds that in the brain of man only, are the hemispheres divided into anterior, middle, and posterior lobes; the cerebral hemispheres in other mammalia possessing only the anterior and middle lobes.

36. *Functions of the Spinal Cord.*—In a very clever paper,† Dr. Paton argues that inasmuch as most of the movements which take place on the application of a stimulus to the surface of the body in cold-blooded animals, after decapitation or division of the spinal cord, are of a definite character, directed to the attainment of a given object, such as the removal of the source of irritation, and often consist of orderly and successful attempts at progression, as in walking, leaping, &c.; that therefore these movements ought not to be regarded as involuntary or reflex ones, but as dependent upon a true perceptive power, resident in the spinal cord, in virtue of which the animal perceives the stimulus and voluntarily performs certain definite movements in response to it. He gives the results of several experiments on frogs and salamanders in illustration of this view. [Although it is quite certain that the movements which result from the application of a stimulus to the bodies of cold-blooded animals, after removal of the brain or division of the spinal cord, are of a much more definite and orderly character than those which are observed in higher animals under similar circumstances, and in man after the destruction of a portion of his spinal cord, yet that these movements are consequent on the animal's perceiving the stimulus, and voluntarily acting in obedience to it, or, in Dr. Paton's words, "that the power of perceiving impressions, and performing movements in response to them by a distinct control over the muscles of voluntary motion, is a property of the spinal cord, and possessed by an animal after the removal of the cerebrum or brain," must seem doubtful. In the most perfect examples of reflex movement in the human subject, dependent on injury or disease affecting the spinal cord, the power of perceiving the stimulus which calls the reflex actions into play, is entirely absent, and it is chiefly on this account that we infer its absence in animals also, in cases where all communication between the brain and spinal cord is cut off.] An entirely opposite view to that of Dr. Paton is maintained by Mr. Anderson,‡ who appears to consider that in all cases of reflex muscular movements, the brain

* Archives d'Anat. Gén. et de Physiol. Janvier, 1846, p. 24. † 'On the Perceptive Power of the Spinal Cord,' Edin. Med. and Surg. Jour., April, 1846. ‡ Lancet, Feb. 7, 1846.

and not the spinal cord is the centre of connexion between the parts irritated and those manifesting motion; and that in the case of decapitated animals, or where from lesion or disease, communication between the brain and spinal cord is cut off, the reflex movements excited by the application of an irritant are not the result of any inherent vitality in the cord, but of the remnant of that power which the cord had been accustomed to transmit; also, that the sympathetic nerve-fibres are able to keep up a sufficient connexion between the portion of cord below the seat of injury, and the brain, "to admit of the transmission of cerebral influence to the muscular system of the extremities for the maintenance of its irritability."

Volkmann* considers that the results of one of his experiments with the rotating magnet furnish clear proof that some nerves arise from (or terminate in) the spinal cord itself, and do not pass up to the brain. Thus, having thrown the body and limbs of a frog into a state of tetanic spasm, by carrying the electric stream through the spinal cord opposite the second cervical vertebra, he withdrew the apparatus, when at once the hind limbs of the frog became relaxed, whilst the fore ones remained in a state of persistent contraction. The results of previous experiments having shown to him that this persistent contraction, after the removal of the stimulus, is only observed when a nervous centre, and not the trunk of a nerve, is irritated, he concluded that the upper part of the spinal cord acts as a nervous centre to the brachial plexus, or, in other words, that some of the nerves of which this plexus is composed arise at once from the upper part of the cord, and are not derived from the brain, whilst to the ischiatic plexus this part of the cord does not act as a centre, or directly furnish any nerves. He repeated this experiment several times, though not always with equally successful results, for sometimes the posterior as well as the anterior extremities would remain in a state of persistent contraction after removal of the stimulus; this circumstance, however, he thought might be due to radiation or reflex action, consequent on the electric stream being too powerful, and that it should not be regarded as militating against his theory.

37. *Nerves of the Arachnoid.*—Mr. G. Rainey,† in a valuable paper, has described the existence of an abundant plexiform arrangement of sympathetic nerve-fibres in the arachnoid. These fibres may be observed proceeding from the filaments ramifying on the cerebral and spinal arteries, and communicating in the arachnoid, and with the filaments connecting it with the pia mater. Besides the ramifications of the nerve-fibres, Mr. Rainey found the tissue of the arachnoid to contain numerous minute corpuscles, bearing an exact resemblance to ganglion-globules. He therefore concludes that the arachnoid should be regarded as a ganglionic centre, supplying sympathetic nerve-fibres to the vessels of the brain, and as standing in the same relation to those vessels as the various ganglia and plexuses in the abdomen do to the vessels supplying the several abdominal viscera. In the discussion which followed the reading of the paper, Mr. Paget confirmed Mr. Rainey's account of the existence of abundant nerve-fibres and corpuscles in the arachnoid, but doubted whether the fine filaments which constituted the greater part of the arachnoid should be regarded as nerve-fibres, or, which seemed more probable, as a variety of fibro-cellular tissue. Until this doubt were solved, the view of the ganglionic character of the arachnoid could not be fully received. Mr. Rainey also observes that what Valentin described as epithelial cells situated upon the choroid plexuses are in reality rounded vesicular bodies, filled with molecular contents, and in all respects similar to ganglion-corpuscles.

* Müller's Archiv, Heft v, 1845, p. 423. † Med. Times, Feb. 21, 1846, Report from London Med.-Chirurg. Society.

38. *Central Termination of the Nerve-Fibres.*—Dr. Radclyffe Hall* states that the connexion which was pointed out by Messrs. Todd and Bowman† as existing between the caudate vesicles and some of the nerve-tubes is, in his opinion, an universal arrangement. He says that every nerve-tube which can be traced to its actual origin in a nervous centre at all, may be seen first to lose its white coating, then to become smaller in caliber and varicose, and finally to terminate in an irregularly-shaped gray cell. There are, however, many spherical cells which have no such connexion with the nerve-tubes. He believes that the varicose condition of the fine translucent tubes in a nervous centre is quite normal, and not, as is generally supposed, the result of post-mortem changes.

## § IX.—*Organs of the Special Senses.*

39. *Eye: Structure of the Vitreous Body.*—The laminated structure of the vitreous body has been already demonstrated by Pappenheim‡ and by Brücke,§ the latter of whom made his observations chiefly on the eyes of sheep. The truth of their account has been in great measure confirmed by Hannover,‖ so far, at least, as concerns the eyes of the horse, ox, sheep, cat, and dog; but not as regards the human eye, in the vitreous body of which a different structure exists. Hannover's account goes further than that either of Pappenheim or of Brücke; he describes the vitreous body in the eyes of the above-named animals as composed of concentric laminæ, each one of which forms a complete shut sac, so that the substance of the body is almost entirely made up of a number of these concentric sacs, inclosed one within the other. In the eye of the cat, dog, and ox, the individual laminæ (which are very thin) lie so closely and compactly one within the other, that the corpus vitreum appears as one solid mass. In the vitreous body of the human eye this peculiar laminated structure does not occur; an arrangement which is almost exactly represented by the structure of an orange being substituted in its place. If a perpendicular section be made of a human corpus vitreum, which has been hardened by maceration in chromic acid, the cut surface will present a number of fine striæ, converging towards the centre, which are so many radii of sectors of which the body is composed. The axis towards which these sectors converge may be represented by an imaginary line drawn through the vitreous body from the centre of the optic nerve, just previous to its expansion into the retina, to the middle of the cornea, consequently it corresponds exactly to the canalis hyaloideus, which transmits the arteria centralis through the centre of the vitreous body. In the hardened eyes of new-born children, in whom this artery is pervious,¶ it is more evident than in adults that the hyaloid canal forms the axis towards which all the sectors converge. The striæ or radii of the sectors do not quite reach the canal, or at any rate they become so fine before they do so, that they are invisible, and the portion of the corpus vitreum immediately around the canal appears structureless and homogeneous; this seemingly structureless portion is much larger in children than in adults. Hannover says he has succeeded once or twice in counting about 180 radii, consequently in these eyes the corpus vitreum would be composed of so many sectors. He has not been able to determine whether each sector has its own wall, or whether one wall is common to each two contiguous sectors; he is of opinion that the interior of each sector is not further subdivided into compart-

* Edinb. Med. and Surg. Journ. April, 1846, p. 379. † See last Report, p. 312.
‡ Specielle Gewebelehre des Auges, 1842, p. 182. § Müller's Archiv, 1843, p. 345; and 1845, p. 130. ‖ Ibid. 1845, p. 471. ¶ In adults he never succeeded in finding either the canal or the artery pervious.

ments. The tissue composing the walls is a structureless transparent membrane, on which are scattered numerous minute granules; it proceeds from the tunica hyaloidea. Concerning this hyaloid membrane, M. Hannover offers some new particulars. He states that at the anterior edge of the retina, the hyaloid membrane divides into two layers, the posterior of which dips into the substance of the vitreous body to form the walls of the sectors, whilst the anterior becomes united with what is called (improperly so, according to Hannover) the tunica vasculosa of the retina; from this point of union the anterior layer then passes down and forms the posterior wall of the canal of Petit, advances forward, and is reflected up along the ciliary body, forming thus the anterior wall of the canal of Petit. From this splitting of the hyaloid membrane into two layers results a circular space or canal hitherto undescribed. Whether this canal possesses any fluid contents, or what is the purpose served by it, Hannover has not been able to determine.

40. *Movements of the Iris.*—To prove that the movements which take place in the iris upon irritating the third pair of nerves are reflex in their character, and do not depend upon direct irritation of any motor fibres of the iris contained in the trunk of the third nerve, Volkmann* adduces the fact that in some cases at least, the contracted or dilated state of the iris (according as the case may be), which is induced by irritation of the third nerve, continues for some time after removal of the irritation, whereas the several muscles of the eye which have been at the same time thrown into contraction become relaxed the moment the irritation is withdrawn. The contraction of the muscles depends on direct irritation of their motor nerves, whereas the action of the iris, Volkmann thinks, is the result of centripetal fibres being irritated, and this irritation reflected upon motor fibres through the medium of the ophthalmic ganglion, which therefore acts as a nervous centre to the iris.†

41. *Flaccidity of the Iris after Death.*—M. Rippault‡ proposes to apply the circumstance of the iris becoming flaccid after death as a means of distinguishing between real and apparent death; for in the former case he finds that the pupil loses its circular form when the globe of the eye is compressed in two opposite directions; but, on the contrary, retains its round form so long as life and the power of vision remains.

42. *Vision.*—To prove that the capacity which the eye possesses of adapting itself to distinct vision at different distances is due to the action of the muscles of the eye, which by their compression increase the antero-posterior diameter of the globe, and so, by the greater or less amount of their contraction, regulate the focal distance to the required degree, M. Frestet§ adduces the circumstance that persons in whom the third pair of nerves (and consequently the majority of the muscles of the eye) is paralysed, become presbyopic, and that this condition is remedied by the use of bi-convex glasses, although dilatation of the pupil still continues, and cannot, therefore, be the cause of the presbyopy.

* Müller's Archiv, Heft v, 1845, p. 426.

† Dr. Radclyffe Hall has published an interesting paper on the 'Functions of the Ophthalmic Ganglion.' (Edin. Med. and Surg. Jour. April, 1846.) Professor Valentin's researches on the 'Functions of the Nerves of the Orbit,' are translated by Mr. France into the London Med. Gazette, commencing in the No. for Feb. 20, 1846.

‡ Comptes Rendus, 23 Mars, 1846. § Trans. of Acad. Roy. des Sciences, Paris, Aug. 11, 1845, in Encyclog. des Sci. Méd. Sept. 1845. The several views on this subject have been recapitulated by M. Adelon, in the article 'Vue,' in the Dict. de Méd. tom. xxx, 1846.

## § X.—*Development.*

43. *Metamorphoses of the Vitellus.*—M. Coste* has published an interesting paper on the formation of cells. His chief object is to show that the cell theory of Schleiden and Schwann is far from being universally true, for if cells are always formed according to their theory, the cytoblastema, during the process of cell-development, ought to present all the formative stages of the process, which, however, it does not. He gives a new account of the metamorphoses of the vitellus in mammalia, after impregnation. He says the vitellus is not a vesicle or cell filled with granules, as is commonly supposed, but is simply a homogeneous granular sphere, the individual granules of which are held together by a viscid, transparent, interstitial fluid, the retention of which gives the mass of granules its spherical form; this form is retained apparently by a delicate layer of the interstitial fluid spread over the surface of the mass, but not by an actual enveloping membrane. Shortly after coming in contact with the seminal particles, the vitelline sphere divides into two nearly equal parts, each of which, immediately rendered spherical in form by the centripetal retraction of the viscous fluid by which its granules are held together, presents the same general appearance and composition as the original sphere. This primary division is scarcely accomplished before the two secondary granular spheres become in their turn the seat of a similar division, and the same phenomenon being repeated upon each new segment, the vitellus is eventually resolved into a number of granular spheres of a progressively diminishing volume, but always of the same nature. As soon as this subdivision is completed, and not before, does each granular sphere become converted into a true cell. In explanation of the cause of this repeated subdivision M. Coste remarks, that in the centre of each vitelline sphere is a transparent homogeneous globule, having a fatty aspect, and within this again is another much smaller globule, which is the true generating one. During the development of the vitellus, this latter globule first makes its appearance, and becomes the centre of the mass; then the fatty-looking globule becomes formed and condensed around it. When the division of the vitelline sphere takes place, the fatty globule also divides into two parts, each of which becomes a centre, draws around it the vitelline granules, and forms another sphere; the same subdivision of the central fatty globule takes place as often as the vitelline sphere itself divides; indeed, the division of the central globules seems to be the cause of the sphere dividing.†

44. *Development of the Chick*—Mr. Tod‡ has furnished a good account of the progressive changes which take place in the development of the chick, from the first appearance of the ovum to the last day of incubation. Amongst other interesting matter he observes that on the fourth day of hatching, the various actions of the fœtal heart may be clearly perceived, by exposing the embryo to cold, for in proportion as the heat of the body diminishes, do the actions of the several cavities of the heart become less frequent, (consequently more easily recognized,) until at length they cease. In this experiment the independent action of each cavity may be noticed; the right auricle and ventricle contract first, and are immediately followed by contractions of the left cavities; the contraction of each cavity is complete, every particle of blood

* Comptes Rendus, Oct. 20 and Dec. 22, 1845; also translated in the Annals of Nat. Hist. Dec. 1845, and Feb. 1846.

† In connexion with the subject of cell-formation may be read an interesting paper on the 'Formation of Starch,' by M. C. Müller, in the Annals of Nat. Hist., Feb. 1846, and some observations by M. Nägeli, on the 'Development of Starch Granules,' in the March No. of the same journal. ‡ Lancet, April 4-11, 1846.

being expelled. The effect of cold in suspending the actions of the heart, and the power of heat in reproducing them, he clearly demonstrated by the following experiment: having removed the albumen and yelk, he placed the egg-shell, containing the embryo and its membranes, in cold water until the actions of the heart ceased; he then gradually applied heat, and found that at the temperature of 98° Fah. the actions recommenced and increased in velocity in exact proportion to the increase of heat applied, up to 120°, which temperature he maintained for one hour, without the great velocity of the heart's action at all diminishing. Cold again arrested the actions, and heat again perfectly restored them; this he repeated several times with the same results. Ammonia heated to 104° Fah., as might be expected, at once and completely destroyed the actions of the heart. He found that although eggs were exposed for five days to the influence of the cold air, and all the vital actions of the embryo had ceased, yet immersion in water heated to 104° Fah. sufficed in a short time to restore them perfectly. The result of many experiments showed that the actions of the heart are slow at 90° Fah., very rapid at 110°, and that at 128° they in a few minutes cease to exist, and cannot afterwards be reproduced.

45. *Nerves of the Uterus.*—An opinion, founded on dissections, was several years ago* advanced by Dr. Lee, and has since been frequently maintained by him, that during gestation the uterine system of nerves enlarges in common with the walls, the vessels, and other parts of the uterus, and after parturition returns to its original condition. In a recent paper read before the Royal Society, Mr. Beck† states, however, that the nerves supplying the uterus undergo no change either in size or position during pregnancy. This opinion he states to be based upon dissections. A similar opinion seems to be entertained also by Mr. Swan,‡ in his recently republished views on the nerves of the uterus. Mr. Swan thinks that the enlargement of the uterine nerves during pregnancy, if any, is very slight, and that the increased energy of the uterine nervous system during the period of gestation, at its close, and during the process of parturition, is sufficient for all required purposes, without there being any increase of the nervous substance.§

* Philos. Transactions, 1842, part ii. † London Medical Gazette, Dec, 26, 1845.
‡ 'The Physiology of the Nerves of the Uterus, and its Appendages.' London, Longman and Co., 1846. § Some physiological remarks are contained in a paper by Dr. Tyler Smith on the relation of the spinal cord to parturition, in the Lancet of March 21, 1846.

# V.

# REPORT ON THE RECENT PROGRESS OF CHEMISTRY IN ITS RELATIONS TO MEDICINE.

BY GEORGE E. DAY, M.A. L.M. CANTAB.

Member of the Royal College of Physicians, Lecturer on Materia Medica at the Middlesex Hospital Medical School, and Physician to the Western General Dispensary.

## § I. *Researches on Magnetism and certain allied subjects.*

We are prepared to expect that some of our readers may regard with considerable distrust the startling, and, at first sight, almost incredible statements contained in the paper of which we propose to give a brief abstract. We would, however, remind them of the high character of Reichenbach as an experimenter, that in some of his most unexpected conclusions he has been corroborated by our own countrymen, Faraday, Gregory, and Hunt, and that Berzelius is drawing up a report on the subject for the Swedish Academy of Sciences.

As the whole Memoir extends to 270 closely-printed pages, we can merely notice a few of the leading points. Reichenbach begins by showing that the magnet is an agent capable of affecting the human body.

"Magnets of 10lb. supporting power, when drawn along the body downwards, without contact, produce certain sensations in a certain proportion of human beings. Occasionally in 20, three or four sensitive individuals are found, and in one case out of twenty-two females examined by the author, eighteen were found sensitive. The sensation is rather unpleasant than agreeable, and is like an *aura*, in some cases warm, in others cool; or it may be a pricking, or a sensation of the creeping of insects on the skin; sometimes headache comes rapidly on. These effects occur when the patient does not see the magnet nor know what is doing; they occur both in males and females, although more frequently in females. They are sometimes found in strong healthy persons, but oftener in those whose health, though good, is not vigorous and what are called nervous persons. Children are frequently found to be sensitive. Persons affected with spasmodic diseases, those who suffer from epilepsy, catalepsy, chorea, paralysis, and hysteria are particularly sensitive. Lunatics and somnambulists are uniformly sensitive.

Healthy sensitive persons observe nothing further than the sensations above noticed, and experience no inconvenience from the approach of magnets. But the diseased sensitive subjects experience different sensations, often disagreeable, and occasionally giving rise to fainting, to attacks of catalepsy, or to very violent spasms. In such cases there occurs an extraordinary acuteness of the senses, such as smell and taste, for example, become astonishingly delicate and acute. The patients hear and understand what is spoken three or four rooms off, and their vision is often so irritable, that, on the one hand, they cannot

endure the sun's light or that of a fire; while, on the other, they are able, in very dark rooms, to distinguish not only the outlines but also the colour of objects, where healthy people cannot distinguish anything at all."

The author's first series of recorded experiments refer to the appearance of light, visible only to the sensitive, at the poles and sides of powerful magnets. One of the persons experimented "saw a flame with play of colours, shooting out rays as large as the magnet, that is, about 10 inches high; also side flames from each plate of the magnet, and a general weaker light over the whole surface at the junction of the plates." When the memoir was printed he had met with six sensitive persons who saw more or less vividly this luminous appearance; the number, last February, amounted to twenty-three, including not merely girls, but men and matrons. To prove that this was real actual light, he shows that it acts on the sensitive plate of the daguerreotype, and is concentrated by a lens. It gave out no perceptible heat; at least none sufficient to affect Nobili's thermoscope.

The *magnetic flame* is to be distinguished from the *magnetic light*. The former is flickering and does not radiate; the latter radiates strongly. The flame yields like other flames when blown on, and when solid bodies are introduced into it. It would, therefore, appear that the light is distinct, imponderable; but that the flame is probably compound, consisting of a material substance along with the imponderable light. The author proceeds to enter into a long description of the aurora borealis, and of the very similar appearances described by the patients. Without regarding the identity as proved, there are very strong reasons for believing it probable.

He then proceeds to show that in certain diseases, especially catalepsy, an attraction subsists between the hand and a magnet.

"Mlle. N. being in catalepsy, insensible and motionless, but free from spasms, a horse-shoe magnet of 20 lb. power was brought near to her head, when the hand attached itself so to the magnet, that whichever way the magnet was moved, the hand followed as if it had been a bit of iron adhering to it. She remained insensible, but the attraction was so powerful that when the magnet was removed in the direction of the feet, further than the arm could reach, she, still insensible, raised herself in bed, and with the hands followed the magnet as far as she possibly could, so that it looked as if she had been seized by the hand, and that member dragged towards the feet. This was daily seen by the author between six and eight p.m., when her attacks came on, in the presence of eight or ten persons, medical and scientific men. At other periods of the day when she was quite conscious, the phenomena were the same. She described the sensation as an irresistible attraction, which she felt compelled against her will to obey. The sensation was agreeable, accompanied with a gentle cooling aura, streaming or flowing down from the magnet to the hand, which felt as if tied and drawn with a thousand fine threads to the magnet. She was not acquainted with any similar sensation in ordinary life." Similar results were obtained in other cases; in one case (the one quoted) a certain amount of attraction was also observed in the foot, but far weaker. It was found that the hand of the cataleptic patient had no attraction for iron-filings, did not in the least affect the needle, and excited no appreciable attraction on a magnet, which was counterpoised on the beam of a balance, and brought near to the hand, although it required some force to prevent the hand from rising to the magnet. That is to say, while the magnet attracted the hand, as it were vitally, the hand did not attract the magnet statically.

The author, although strongly prejudiced against the idea of magnetized water being recognizable, was yet compelled to admit what he saw daily in

many patients, that they could easily distinguish a glass of water along which a magnet, unknown to them, had been drawn, and this without failure or hesitation. A magnetized glass of water was found to possess the property of attracting the hand of Mlle. N.; this took place whether she was in a state of catalepsy or not.

All sorts of minerals, preparations, drugs, in short, objects of all kinds were then magnetized in the same way as the water, by drawing or passing the magnet along them, and being tried, was found to act as the water had done, more or less powerfully. Some of these caused spasms over the whole body, others only in the arm, others again only in the hand, and lastly, others not at all. The same substances were then tried in their natural condition, without being previously magnetized. They were still found to act with a power often little inferior to that which they had when magnetized. It was observed that the effect in the cataleptic state was much more distinct and powerful than when the patient was in the normal condition. On comparing the bodies employed it was found that all those bodies which were clasped convulsively in the hand (the active group) included all loose single crystals, and groups of crystals, with their chief axes parallel, as celestine, gypsum, red and brown hæmatite, &c. The active substances were also beautifully crystallized, and he divides them into three classes: *a*, such as caused the fingers to close on the body with hardly perceptible spasm; *b*, those which caused the hand to be closed with spasm, but did not attract it to follow; and *c*, those which caused the hand to contract with violent spasm, and attracted it also when made to pass near it. For the list of substances employed we must refer to pp. 16, 17, of Dr. Gregory's Abstract.

The general result of these experiments is that distinct solitary crystals appear to possess a power of a peculiar nature, not previously noticed, and apparently dependent on the structure of matter, namely, on the arrangement of the particles. The author found that about one half the persons in the neighbourhood were more or less sensitive to crystals. The crystals should be large, single, with natural acuminations; heavy spar, fluor spar, gypsum, and rock crystal are the best. They must be drawn as near the inner surface of the hand as possible, five seconds being taken to a streak, and held perpendicularly. The sensation is cool when the streak on the hand is made downwards, and warm and very disagreeable (so as even in some cases to cause spasm) when it is made upwards. The conclusions to be deduced from this section, and which, according to Reichenbach, may be regarded as established, are—

1. Every crystal, natural or artificial, exerts a special action on the animal nerves, feeble in healthy persons, powerful in many diseased individuals, strongest of all in cataleptic cases.

2. This influence is seated chiefly in the axis of the crystal, and being most active at the opposite ends of the axis, is consequently polarised.

3. At the poles, light is sent forth visible to eyes rendered preternaturally acute by disease, especially of the nervous system.

4. In certain disorders, the crystal attracts or solicits the hand of the patient by a kind of attraction, analogous to that of the magnet for iron. But this force is in many important points altogether distinct from magnetism.

5. The force may be transferred to other bodies which may be charged with it by contact. Different bodies conduct it with different degrees of facility.

6. The force differs qualitatively at the opposite poles; at the — M pole causing a sensation of coldness, at the + M pole, one of warmth. Quantitatively the — M pole (pointing in the magnet to the north) is weaker than the + M pole.

The author then proceeds to show that the system of sensitive persons is affected by terrestrial magnetism. He felt, *à priori*, assured that if a magnet or a crystal produces so decided an effect on the system, the magnetism of the earth, which gives the needle its direction, must likewise influence the animal nerve. Trials were then made on MM. Schuh and Schmidt, surgeons, as well as on many other persons, in different circumstances and at different times. "M. Schuh had, in the house then inhabited by him, the singular custom when he awoke early in the morning of regularly turning himself in bed so as to place his head where the feet had been; on doing this he invariably fell asleep again, and this second sleep, contrary to the usual opinion, was to him far more refreshing than the whole sleep preceding it. If he omitted this, or lost his second sleep, he felt weary all day, and thus this strange custom had become a necessity for him. The author inquired and found that the head of the bed was directed to the south, the feet to the north. He advised the turning of the bed into exactly the opposite position, with the head towards the north, and from that time the necessity for the second sleep never returned, the ordinary sleep was refreshing and sound, and the custom above mentioned at once given up." Seven other much more marked cases are given; they all agreed that lying in any position except from north to south is highly disagreeable, but that from west to east almost intolerable. The cause of these phenomena can only be found in that great magnet which is formed by the earth with its atmosphere, that is, terrestrial magnetism. Reichenbach lays it down as a law, that "terrestrial magnetism exerts on certain persons, both healthy and otherwise, who are sensitive, a peculiar influence, powerful enough to disturb their rest, and in the case of diseased persons, disturbing the circulation, the nervous functions, and the equilibrium of the mental powers." Since terrestrial magnetism is subject to variations connected with the lunar phases, some light is partially thrown on one of the causes influencing insanity. The author likewise shows that his observations regarding the influence of terrestrial magnetism afford a clue to many of the discordant results of the animal magnetism. His next important conclusion is, that the peculiar force of magnets and crystals exists in the human hand, and is analogous to magnetism. When he caused his fingers of the right hand to follow each other in a line down the middle of the inside of the hand, but not in contact with it, all those who were sensitive to the magnet felt either a cool or a warm aura, and that generally more distinctly than in the case of a crystal. Indeed many healthy persons were sensitive to this influence; amongst others, M. Schuh, M. Studer, and M. Kotschy, the African traveller, all healthy vigorous men, the latter a rare specimen of manly vigour and hardy constitution. We have only space for the general conclusions of this section, which are—

1. That the hand, passed over sensitive patients, acts on them like the poles of crystals.

2. That the power which here acts is conductible through all bodies like the force of crystals, and that it likewise resembles this force in its capability of being collected in other bodies, and in its disappearance from those bodies in a short time.

3. That this force is polarised in the human body, as the other is in crystals, and that both are alike uninfluenced by the earth's magnetism.

4. That this force exercises a mechanical attraction on the hands of catalepties, as does the force of crystals.

5. That this force exhibits beautiful luminous phenomena, visible to the sensitive, of the same kind and strength as those exhibited by the force of crystals. The author promises to give drawings of these beautiful appearances with a future memoir. It is worthy of remark that Professor Gregory, two

years ago, and consequently long before he had heard of Reichenbach's observations, often saw a lad who in the mesmeric state observed flames issuing from the point of his (the Professor's) fingers.

In section 4 are considered further sources of the new power; the sun's rays are shown by some beautiful experiments to yield it, and that moonlight, although it conveys no heat, possesses a powerful hidden influence similar to that which resides in crystals, magnets, the human hand, and the sun's rays. Heat, friction, and artificial light are other sources of it.

The most important points of section 5 are the following:

1. Chemical action, as well the ordinary kind as that connected with combustion and the galvanic pile, is a comprehensive source of the magneto-crystalline force.

2. The most insignificant chemical action is sufficient to develop it abundantly, to charge surrounding objects with it, to exhibit polarity, to produce light, &c.

3. The magnetic baguet of Mesmer and his followers most probably developed this force in consequence of chemical action.

4. Digestion and respiration and, in general, the change of matter in the animal body, being chemical processes are the sources of the magnetic influence which exists and acts in the human frame.

5. The ghost-like luminous appearances that have been observed above graves, although unseen by most healthy persons, do really exist, are of a purely physico-chemical nature, but can only be seen by the highly sensitive.

6. Electricity is also a source of the power which resides in crystals, &c. This is true both of friction-electricity, positive and negative, and of contact-electricity, and even the electric atmosphere is capable of setting this force in motion at considerable distances.

In the remainder of the memoir he shows that all bodies in some degree contain the new force; that they cause heat and cold, and are luminous to the sensitive, but that the light is variously coloured; that the amount of the new force in the hand varies at different hours; and finally, in what manner the foregoing facts may be applied to the preservation of the health.

## § II.—*Respiration.*

2. *Chemistry of Respiration.*—Under this head we would direct the attention of our readers to the following memoirs:

1st. Further Researches on the estimation of the amouut of Carbonic Acid expired in twenty-four hours, by E. A. Scharling.*

2d. Vierordt's† article on Respiration, or his separate work entitled 'The Physiology of Respiration' (Physiologie des Athmens, Karlsruhe, 1845); and 3d. Hannover 'De quantitate relativa et absoluta acidi carbonici ab homine sano et ægroto exhalati, Hafniæ, 1845,'

Some of Vierordt's conclusions may be seen in our first volume, p 304. He now gives the results of 578 experiments performed upon himself. Omitting the tables on which his deductions are based, and the details of the mode in which he conducted his experiments, we must content ourselves with his most important results. The conditions influencing the variations in the respiratory process are: 1. *The time of day.* There is a slight increase in the quantities of air and of carbonic acid expired in a minute between 9 and 10 a.m.; a slight decrease between 10 and 11; a greater decrease between 11 and 12; a very great increase between 12 and 2 p.m; and a nearly regular and great decrease

* Annalen der Chemie und Pharmacie, Jan. 1846. † Wagner's Handworterbuch der Physiologie, vol. ii, pp. 823-916.

from 2 to 7 p.m. at which latter time they are much less than at 9 a.m. The increase from 12 to 2 p.m. is probably due to the influence of food and digestion, for during these experiments the chief meal was taken between 12 and 1 p.m. 2. *The effects of dinner* are to produce an increase *per minute* in the pulse of 16·3 beats; in the respirations of 1·72 times in the expired air of 269 cubic inches, in the expired carbonic acid of 19·37 inches. The evening meal produced similar but less marked effects, except that the frequency of the pulse was unaffected by it. 3 *Spirituous drinks* diminish the exhalation of carbonic acid. After taking from half a bottle to a bottle of wine, the carbonic acid fell from 4·54% to 4·01%, and this diminution continued for nearly two hours. 4. *Bodily exercise* in moderation makes the exhalation of carbonic acid about one third more than it is during rest; and for about an hour after exercise there is an increase of 118 cubic inches in the air expired *per minute*, and an increase of 1% in the carbonic acid contained in it.

In conclusion, he shows the extent of the limits between which there may be variations without affecting the health, and during a state of repose. The pulse ranged from 54 to 101 per minute; the respiration between 9 and 15; the expired air between 1637 and 3676 cubic inches; the carbonic acid contained therein between 3·358 and 6·22%; and the volume of each expiration between 144·6 and 275 cubic inches.

Hannover considers, in the first place, the relative and absolute quantity of carbonic acid expired in the normal condition, and the various disturbing influences modifying that quantity; and then proceeds to experimental inquiry into the effect of disease on the expired carbonic acid. He made 26 experiments on 4 cases of chlorosis; 29 on 5 cases of phthisis; 9 on 2 cases of chronic bronchitis; 10 on 2 cases of icterus; 5 on a case of morbus cordis; 5 on a case of morbus Brightii; and 5 on a case of lithiasis; in all, 89 experiments. The following are his mean results:

| No. of Experiments. | Disease. | Sex. | Age. | Weight. | Temperature. | Pulse. | Respiration. | Amount of $CO_2$ in an hour in Grains. |
|---|---|---|---|---|---|---|---|---|
| 26 | Chlorosis . . | F. | 20¼ | 95 lb. | 55 F. | 75·8 | 25 | 116·4 |
| 16 | Phthisis . . | M. | 38⅔ | 101 | 61·7 | 101·1 | 30·8 | 100·3 |
| 13 | Phthisis . . | F. | 36 | 95 | 55 | 95·1 | 29·2 | 95·3 |
| 9 | Bronchitis chronica | M. | 38 | 124 | 61·4 | 85·6 | 27·4 | 149·5 |
| 7 | Icterus . . | M. | 32 | 133 | 56 | 57 | 12·5 | 137·0 |
| 3 | Icterus . . | F. | 42 | 104 | 60 | 71 | 17 | 135·1 |
| 5 | Morbus Cordis . | M. | 17 | 96 | 61 | 89 | 20 | 114·0 |
| 5 | Morbus Brightii . | M. | 49 | 123 | 60 | 55 | 23·5 | 145·0 |
| 5 | Lithiasis . . | M. | 49 | 111 | 60 | 69 | 18 | 86·0 |

The most certain conclusions from this table appear to be, that in chlorosis the absolute quantity of carbonic acid is increased, and that in phthisis it is diminished. For the healthy standard of comparison we must refer to vol. i, pp. 292 et seq.

## § III.—*The Blood.*

3. *Extractive Matters.*—In an examination of the extractive matters of the blood, Dr. Ludwig* has found that their principal ingredient is an isomeric modification of the binoxyde of protein. The following is his method of obtaining it from healthy blood. Immediately after its removal from the body the blood must be whipped, strained, and heated in an earthen vessel over an open

* Annalen der Chemie und Pharmacie, Oct. 1845.

fire, care being taken to keep it continually stirred. As soon as it has acquired a brown colour throughout, it must be removed from the fire and pressed between the folds of a linen cloth. The blood-red alkaline fluid thus obtained must be then treated with dilute hydrochloric acid, till all alkaline reaction is neutralized. On again heating the neutralized fluid over an open fire to ebullition, and filtering, we obtain a colourless or light brown liquid. Care must be taken in the first coagulation not to continue the heat too long, lest the solution of albumen (after the straining) should be so dilute as on the second coagulation to separate in too minute flocculi to be retained by any filter. Moreover the addition of the acid must be conducted with great care, since any albumen retained in solution would be converted into binoxide of protein by the free acid. The best tests for the neutrality of the fluid are that after the filtration, subsequent on its first ebullition, its colour shall not be affected, nor shall it be rendered turbid by further heating, and that it shall not yield a precipitate on the addition of a few drops of a solution of carbonate of soda.

The liquid thus freed from albumen is to be treated with four or five volumes of alcohol of 85%, on which a slight turbidity ensues. On allowing the fluid to stand, a layer of minute white flocculi sinks to the bottom, which must be purified by decantations with water, alcohol, and ether. Water extracts chloride of sodium, a little subphosphate of soda, and a white amorphous body, which, after drying, resembles binoxide of protein, but is obtained in too small a quantity to admit of ultimate analysis. Boiling alcohol removes some fat and a little amorphous matter, and finally, ether takes up a considerable quantity of a beautifully crystalline fat. (The presence of this fat in the water-extract of blood undoubtedly proves the existence of the blood-soaps, which has been denied by Enderlin.*)

The white substance thus purified was dried at 248°, and submitted to ultimate analysis, was found to give the same results as those obtained by Scherer and Mülder from binoxide of protein. No sulphur could be detected in it. A modification of this substance, soluble in alcohol, is likewise described by Ludwig. The memoir concludes by showing that this substance exists in the serum, not in the corpuscles, and next to the saline constituents form the chief part of the extractive matters of the blood of man, the dog, ox, sheep, and pig, and by an attempt to prove that the above substances actually exist in the blood, and that they are not formed from any of the protein compounds during analysis.

Liebig† has, however, increased the confusion of the subject by an attempt to disprove the existence of protein altogether. In both protein itself and the binoxide, as obtained by Mülder's processes, he has always found sulphur. "In my opinion," he observes, "the formation of protein requires a new and more searching investigation. I have not yet succeeded in producing a non-sulphuretted substance possessing the composition and properties of the so-styled protein, according to the data and instructions given by Mülder." He likewise expresses his belief that protid and erythroprotid have no positive and definite existence, but that they are merely mixtures of transitory com-

* According to Rees, if we incinerate the serum and the clot we obtain an ash which does not effervesce on the addition of acids, but if we incinerate serum alone we obtain an ash which effervesces strongly on the addition of acids. He attempts to explain the apparent discrepancy by assuming that the phosphorised fats contained in the clot produce, during combustion, a sufficient quantity of phosphoric acid to decompose the carbonates formed from the decomposed lactates and albuminates of the serum. 'On the Analysis of the Blood and Urine.' 2d Edition, p. 30, note.

† Annalen der Chemie und Pharmacie, Jan. 1846.

pounds, depending on the varying influences of temperature, the strength of the alkaline solution, concentration, &c.

4. Dr. R. D. Thompson applies the term *pegmine* (from $\pi\eta\gamma\mu\alpha$, *coagulum*) to a peculiar protein compound in the buffy coat of the blood, which partially dissolves by long-continued boiling. Dried at 300°, after having been previously treated with cold water, alcohol, and ether, it yielded—

| | |
|---|---|
| Carbon | 52·07 |
| Hydrogen | 7·80 |
| Nitrogen | 14·00 |
| Oxygen } Sulphur } | 26·13 |

The presence of sulphur was determined beyond all doubt. Dr. Thompson's pegmine (independently of the sulphur) is apparently tritoxide with a little binoxide of protein. (See Simon's 'Animal Chemistry,' vol ii, Appendix 1.)

5. *Gaseous Contents of the Blood.*—Magnus* has repeated his experiments respecting the amount of oxygen and nitrogen in the blood, and the extreme quantities of those gases which it is capable of absorbing. The results of a large number of experiments were tolerably numerous. The quantity of oxygen obtained from the blood was from 10 to 12·5% of its volume; that of nitrogen from 1·7 to 3·3%. Conversely it was found that blood could absorb 1·5 times its volume of carbonic acid, and that after all its oxygen and nitrogen had been displaced by carbonic acid, it could absorb occasionally as much as 16% of its volume of oxygen, and 6·3 of nitrogen. From similar experiments on the arterial blood of aged horses, it appeared that such blood naturally contains in simple solution from 10 to 10·5% of oxygen, and from 2 to 3·3% of nitrogen, and from further experiments he concludes that of this 10% of oxygen in arterial blood about 5% are consumed in the systemic capillaries, and 5% remain in the venous blood, to be completed to the general average of 10%, by the absorption of fresh oxygen in the pulmonary capillaries.

6. *Composition of Healthy Blood.*—The two following analysis have been published by Elsner:†

| | 1. | 2. |
|---|---|---|
| Water | 791·900 | 798·656 |
| Fibrin | 2·001 | 2·208 |
| Fat from fibrin | 0·089 | 0·126 |
| Fat from the rest of the blood | 1·889 | 2·587 |
| Albumen | 75·590 | 77·610 |
| Globulin | 105·165 | 100·890 |
| Hæmatin | 7·181 | 5·273 |
| Extractive matter, salts and sugar | 14·174 | 9·950 |

No. 1 was taken from the arm of a healthy young man aged 17, and No. 2 was obtained from the arm of a rather plethoric but healthy girl, aged 28 years.

With regard to the salts of the blood, Liebig‡ has recently confirmed the views of Enderlin respecting the absence of alkaline carbonates. In five pounds of ox-blood he could not find a trace of an alkaline carbonate, the alkaline reaction being due to phosphate of soda. No urea or sugar could be detected.

7. *Composition of Diseased Blood.*—By far the most important contribution

* Annalen der Physik und Chemie, vol, lxvi, p. 177; or Philos. Mag. Dec. 1845, Suppl.
† Zeitfaden der Chemischen Analyse organischer Substanzen. Zweiter Theil, p. 194. Berlin, 1845. ‡ Annalen der Chemie und Pharmacie, Jan. 1846.

to this part of our subject is Popp's* Essay on the Blood in various Diseases.

For the sake of brevity we have annexed his most important results in a tabular form.

*Simple Plethora.*

| | Sex. | Age. | Amount of water in 1000 parts. | Fibrin. | Blood-corpuscles. | Residue of serum. |
|---|---|---|---|---|---|---|
| 1. | Male | 26 | 801·867 | 2·848 | 108·361 | 86·924 |
| 2. | Male | 27 | 788·497 | 2·447 | 120·582 | 88·479 |
| 3. | Male | 33 | 1. 772·414 | 1·724 | 128·473 | 97·389 |
| | | | 2. 787·667 | 3·333 | 124·789 | 85·211 |
| 4. | Female | 80 | 795·855 | 2·570 | 124·263 | 77·312 |

*Pregnancy.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Female | 22 | 781·015 | 1·995 | 140·903 | 76·087 |
| 2. | Female | 32 | 792·286 | 2·077 | 119·684 | 85·953 |

*Simple Irritability of the Brain and Spinal Cord.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 19 | 1. 780·620 | 2·947 | 140·534 | 75·899 |
| | | | 2. 786·485 | 0·939 | 120·482 | 92·094 |
| 2. | Male | 22 | 1. 783·292 | 3·874 | 128·994 | 83·840 |
| | | | 2. 781·906 | 3·606 | 125·264 | 89·224 |

*Epilepsy.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 34 | 771·050 | 1·968 | 133·063 | 93·919 |
| 2. | Female | 40 | 800·673 | 2·240 | 99·652 | 97·435 |
| 3. | Female | 40 | 801·551 | 2·584 | 108·814 | 81·051 |

*Puerperal Convulsions.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Female | 33 | 801·983 | 5·170 | 116·602 | 76·245 |

*Hemiplegia..*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Female | 46 | 786·774 | 4·092 | 124·293 | 84·841 |
| 2. | Male | 67 | 795·190 | 7·816 | 119·205 | 77·789 |

*Lead Poisoning.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 27 | 822·564 | 6·139 | 84·592 | 86·705 |

*Hypertrophy of the Heart.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 27 | 791·861 | 3·073 | 128·776 | 76·290 |
| 2. | Male | 28 | 790·182 | 2·318 | 129·257 | 78·343 |
| 3. | Male | 38 | 1. 771·840 | 4·105 | 145·638 | 78·417 |
| | | | 2. 776·224 | 3·011 | 139·764 | 81·001 |
| | | | 3. 780·211 | 3·448 | 117·104 | 90·237 |

*Dilatation and Thinness of the Heart's Walls.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 49 | 806·328 | 2·835 | 112·922 | 77·915 |
| 2. | Male | 60 | 802·641 | 2·897 | 122·204 | 72·258 |

*Inflammatory Irritation of the Brain and Spinal Cord.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 42 | 780·564 | 4·457 | 125·560 | 89·419 |

* Untersuchungen über die Beschaffenheit des Menschlichen Blutes in verschiedenen Krankheiten, von Dr. Karl Popp. Leipzig, 1845.

*Inflammation of the Brain.*

| | Sex. | Age. | Amount of water in 1000 parts. | Fibrin. | Blood-corpuscles. | Residue of serum. |
|---|---|---|---|---|---|---|
| 1. | Male | 26 | 1. 811·253 | 6·448 | 105·427 | 76·872 |
| | | | 2. 797·566 | 6·371 | 113·566 | 82·497 |

*Pneumonia.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Female | 4½ | 839·280 | 12·302 | 90·010 | 66·408 |
| 2. | Male | 14 | 831·648 | 9·367 | 86·878 | 72·107 |
| 3. | Male | 15 | 814·660 | 10·055 | 103·551 | 71·734 |
| 4. | Female | 16 | 1. 812·102 | 7·089 | 90·380 | 90·430 |
| | | | 2. 830·526 | 7·588 | 87·232 | 74·654 |
| 5. | Male | 16 | 792·302 | 4·664 | 127·495 | 75·539 |
| 6. | Male | 16 | 780·009 | 5·050 | 123·322 | 91·619 |
| 7. | Male | 20 | 807·117 | 4·576 | 106·706 | 81·601 |
| 8. | Male | 20 | 1. 781·724 | 10·192 | 121·533 | 86·551 |
| | | | 2. 805·476 | 10·884 | 98·866 | 83·774 |
| 9. | Male | 22 | 1. 779·505 | 6·294 | 113·692 | 100·609 |
| | | | 2. 783·189 | 7·971 | 117·327 | 91·513 |
| 10. | Male | 22 | 814·245 | 6·901 | 108·023 | 70·831 |
| 11. | Male | 22 | 802·612 | 5·493 | 120·591 | 71·304 |
| 12. | Male | 24 | 812·269 | 6·114 | 105·063 | 76·554 |
| 13. | Female | 25 | 779·026 | 3·965 | 133·956 | 83·053 |
| 14. | Male | 27 | 1. 792·823 | 3·673 | 108·886 | 94·618 |
| | | | 2. 794·099 | 7·275 | 110·965 | 87·661 |
| | | | 3. 804·067 | 7·956 | 108·166 | 79·811 |
| | | | 4. 813·841 | 9·036 | 111·462 | 65·661 |
| 15. | Female | 32 | 803·425 | 3·246 | 89·162 | 104·167 |
| 16. | Male | 33 | 825·663 | 9·036 | 92·912 | 72·389 |
| 17. | Female | 34 | 1. 811·741 | 9·897 | 112·114 | 66·248 |
| | | | 2. 841·125 | 2·554 | 80·083 | 76·238 |
| 18. | Male | 36 | 821·038 | 4·347 | 91·114 | 83·501 |
| 19. | Female | 38 | 802·537 | 7·047 | 105·788 | 84·628 |
| 20. | Male | 29 | 791·388 | 6·938 | 117·378 | 84·296 |
| 21. | Male | 41 | 809·245 | 10·249 | 104·330 | 76·176 |

*Bronchitis.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 22 | 794·479 | 4·102 | 120·667 | 80·752 |
| 2. | Male | 23 | 792·336 | 4·040 | 118·463 | 85·161 |
| 3. | Male | 25 | 790·322 | 2·751 | 97·135 | 109·792 |
| 4. | Male | 35 | 806·321 | 5·432 | 92·199 | 96·048 |
| 5. | Male | 45 | 801·631 | 2·935 | 104·029 | 91·405 |

*Uterine Inflammation after Delivery.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Female | 30 | 854·813 | 5·622 | 68·005 | 71·560 |

*Febrile Arthritic Rheumatism.*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Male | 14 | 823·021 | 8·178 | 92·744 | 76·057 |
| 2. | Female | 19 | 859·734 | 13·348 | 59·124 | 67·794 |
| 3. | Female | 20 | 1. 801·455 | 11·891 | 100·241 | 86·413 |
| | | | 2. 816·124 | 12·978 | 77·159 | 93·739 |
| 4. | Male | 20 | 822·410 | 11·426 | 91·300 | 74·864 |
| 5. | Female | 20 | 1. 802·361 | 5·762 | 115·971 | 75·906 |
| | | | 2. 822·864 | 8·921 | 86·527 | 82·688 |

| | Sex. | Age. | Amount of water in 1000 parts. | Fibrin. | Blood-corpuscles. | Residue of serum. |
|---|---|---|---|---|---|---|
| 6. | Male | 22 | 1. 790·467 | 11·403 | 115·314 | 82·816 |
| | | | 2. 817·268 | 7·913 | 98·647 | 76·172 |
| | | | 3. 830·741 | 9·254 | 92·075 | 67·930 |
| 7. | Male | 22 | 803·279 | 8·196 | 104·737 | 83·788 |
| 8. | Male | 24 | 785·644 | 8·219 | 120·396 | 85·741 |
| 9. | Male | 30 | 807·705 | 7·030 | 114·236 | 71·029 |
| 10. | Male | 40 | 789·814 | 7·060 | 118·222 | 84·904 |
| | | | *Simple Rheumatic Fever.* | | | |
| 1. | Male | 24 | 772·978 | 3·175 | 141·757 | 82·110 |
| 2. | Male | 26 | 798·489 | 4·027 | 107·737 | 89·847 |
| 3. | Male | 46 | 791·436 | 1·934 | 118·046 | 88·584 |
| | | | *Typhus.* | | | |
| 1. | Male | 18 | 802·851 | 3·121 | 124·242 | 69·786 |
| 2. | Female | 19 | 804·071 | 3·644 | 108·974 | 83·308 |
| 3. | Male | 19 | 827·030 | 4·317 | 92·413 | 76·240 |
| 4. | Male | 20 | 815·888 | 2·964 | 99·807 | 81·341 |
| 5. | Female | 20 | 814·500 | 5·000 | 104·396 | 76·104 |
| 6. | Male | 25 | 801·352 | 1·715 | 119·026 | 77·907 |
| 7. | Female | 26 | 791·565 | 2·300 | 119·974 | 86·161 |
| 8. | Male | 33 | 792·739 | 3·099 | 132·815 | 71·347 |
| | | | *Erysipelas.* | | | |
| 1. | Male | 33 | 807·985 | 6·607 | 127·800 | 57·608 |
| | | | *Glanders.* | | | |
| 1. | Male | 41 | 1. 823·570 | 6·374 | 107·243 | 62·813 |
| | | | 2. 822·097 | 10·483 | 114·400 | 53·020 |
| | | | *Tubercular Phthisis.* | | | |
| 1. | Male | 22 | 806·628 | 4·069 | 123·816 | 65·517 |
| 2. | Male | 22 | 801·933 | 5·400 | 107·038 | 85·629 |
| 3. | Male | 22 | 818·505 | 5·161 | 94·791 | 81·543 |
| 4. | Male | 22 | 786·926 | 1·864 | 125·526 | 85·684 |
| 5. | Male | 23 | 801·087 | 5·434 | 107·489 | 85·990 |
| 6. | Male | 24 | 802·299 | 6·101 | 80·996 | 110·604 |
| 7. | Male | 26 | 1. 841·573 | 2·620 | 84·678 | 71·129 |
| | | | 2. 827·282 | 10·736 | 91·045 | 70·937 |
| 8. | Female | 26 | 791·569 | 2·306 | 125·615 | 80·508 |
| 9. | Male | 27 | 800·174 | 3·475 | 108·162 | 87·189 |
| 10. | Male | 27 | 771·136 | 2·129 | 151·663 | 75·072 |
| 11. | Male | 28 | 812·203 | 4·862 | 96·282 | 86·653 |
| 12. | Male | 28 | 810·848 | 8·305 | 95·183 | 85·664 |
| 13. | Male | 36 | 819·094 | 3·294 | 76·695 | 100·917 |
| 14. | Male | 38 | 810·923 | 6·228 | 117·863 | 64·986 |
| 15. | Male | 39 | 845·872 | 5·302 | 68·584 | 80·242 |
| 16. | Male | 40 | 806·000 | 7·438 | 103·858 | 82·704 |
| 17. | Male | 46 | 821.729 | 6·124 | 85·011 | 87·136 |
| 18. | Male | 46 | 825·429 | 5·428 | 83·528 | 85·615 |
| 19. | Male | 48 | 828 252 | 3·334 | 94·660 | 73·754 |
| 20. | Male | 50 | 1. 784·582 | 5·782 | 125·290 | 84·346 |
| | | | 2. 802·100 | 5·098 | 116·530 | 76·272 |

| | Sex. | Age. | Amount of water in 1000 parts. | Fibrin. | Blood-corpuscles. | Residue of serum. |
|---|---|---|---|---|---|---|
| 21. | Male | 51 | 835·641 | 2·750 | | |
| 22. | Male | 53 | 790·442 | 4·803 | 114·389 | 90·366 |
| 23. | Male | 54 | 801·723 | 3·790 | 126·289 | 68·198 |
| 24. | Male | 57 | 1. 813·413 | 3·845 | 104·618 | 78·124 |
| | | | 2. 854·290 | 4·009 | 78·002 | 63·699 |
| | | | *Induration of the Liver and Dilatation of the Heart, with Chlorosis.* | | | |
| 1. | Female | 24 | 822·197 | 0·930 | 85·519 | 91·354 |
| | | | *Bright's Disease.* | | | |
| 1. | Male* | 16 | 841·771 | 6.322 | 92·094 | 59·813 |
| 2. | Male | 42 | 839·941 | 6·997 | 93·687 | 59·375 |
| 3. | Male | 48 | 835·651 | 3·562 | 77·851 | 82·936 |
| 4. | Male | 60 | 800·131 | 1·963 | 119·614 | 78·292 |
| | | | *Scirrhus.* | | | |
| 1. | Male | 32 | 783·396 | 5·875 | 132·302 | 78·427 |

The author, in summing up his results, notices in the first place, *the colour* of the blood, which was observed in 130 cases. In twenty-one of these cases (of which five were pneumonic, three tubercular, three cases of febrile rheumatism, and three of typhus) the blood was of a very bright red colour; in fourteen it was of a very dark brownish red, and in six (five being cases of typhus) it was of a violet colour. Secondly, *its temperature*, which was observed on forty-seven occasions. This was above the average in plethora, bronchitis, lead-poisoning, inflammation of the brain, inflammation of the lungs, febrile rheumatism, typhus, and erysipelas; it was below the average in dilatation of the heart, phthisis, and irritation of the spinal cord. The range of the variations extended over more than 11° F. Popp could detect no connexion between the heat and the amount either of the fibrin or the corpuscles. Thirdly, *the specific gravity* of the blood, which after the removal of the fibrin was determined twenty-seven times; it varied from 1039 to 1062. Fourthly, *the differences in the coagulation.* Fifthly, *the character of the serum*, of which the specific gravity varied from 1011 (occurring in morbus Brightii) to 1031 (in a case of plethora). It was milky, from the presence of fat-globules, in two cases of morb. Brightii, one of puerperal convulsions, and one of phthisis. It had an urinous odour, and contained urea in two cases of morb. Brightii and in one of scarlatina. Sixthly, *the fibrin.* Seventhly, *the blood-corpuscles.* Here the author gives an interesting table, containing the results of sixty-eight observations on the increase or diminution of the colourless corpuscles; they seem especially abundant in pneumonia and pulmonary phthisis. Eighthly, he considers at some length the relative proportions of the different ingredients; and, in conclusion, he notices the effects of venesection, certain remedies, and age on the blood. Tartar emetic and nitrate of potash, and, in a less degree, calomel, appear to diminish the amount of fibrin. The action of lead seems to increase the fibrin, and diminish the blood-corpuscles. The prolonged use of cod-liver oil increases the number of colourless corpuscles.

Elsner† has made the two following analyses of diseased blood—1, was

* The blood contained a very considerable amount of urea, when examined in accordance with the rules laid down by Simon. See Simon's Animal Chemistry, English edit. vol. i, p. 183.

† Op. cit. p. 194.

taken from a man, aged 40 years, suffering from pneumonia; and 2, from a man, aged 56. with incipient phthisis:

| | 1. | 2. |
|---|---|---|
| Water . . . | 803·189 | 803·404 |
| Fibrin . . . | 5·632 | 3·443 |
| Fat, from the fibrin . . | 0·189 | 0·153 |
| Fat, from the other constituents . | 4·147 | 0·643 |
| Albumen . . . | 121·721 | 102·100 |
| Globulin . . . | 52·071 | 74·948 |
| Hæmatin . . . | 2·752 | 2·466 |
| Extractive matter, salts, and sugar | 10·309 | 11·258 |

*Blood in cyanosis.*—The blood of a man (a French soldier), aged 28 years, who had always enjoyed good health till he went to Africa, when after intermittent fever and dysentery, dropsy and cyanosis supervened, was analysed by M. Fallot.* The blue colour of the skin was persistent, but the functions of circulation and respiration carried on with perfect regularity. Four months after the appearance of the disease the blood yielded the results given in analysis 1; analysis 2 was made after the use of subcarbonate of iron for a fortnight; and analysis 3 after its use for a second fortnight.

| | 1. | 2. | 3. |
|---|---|---|---|
| Water . . . | 822 | 819 | 821 |
| Solid constituents . | 178 | 181 | 179 |
| Fibrin . . | 1 | 1 | 1 |
| Blood-corpuscles . | 110 | 113 | 111 |
| Solid residue of serum | 67 | 67 | 67 |

After the third analysis the iron was suspended. The patient is reported as still remaining in the same condition.

*Blood in purpura hæmorrhagica.*—In a well-marked case of this disease Andral and Gavarret† found the blood contained—

| | |
|---|---|
| Water . . . . | 795·0 |
| Solid constituents . . | 205·0 |
| Fibrin . . . | 0·9 |
| Blood-corpuscles . . | 121·0 |
| Solid residue of serum . . | 83·0 |

*Blood in scrofula.*—Mr. Phillips‡ states that he has examined the blood in sixty-seven instances of scrofula. In almost every case he observed that "the coagulum was relatively small, the serous menstruum large, the clot was usually very soft, almost diffluent; in a few instances only was it tolerably firm. In almost all cases, the proportion of globules was considerably under the healthy standard. The fibrin had not usually undergone much change; in a few cases it exceeded, in many more it was below, the normal standard. In most instances there was a considerable increase in the proportion of albumen; in almost every instance the proportion of salts was found to exceed the healthy standard; in some instances it was nearly doubled." [Such are Mr. Phillips's views on the composition of the blood in scrofula; and if they are really correct, it is to be regretted that he has expressed them in so vague and indefinite a manner. We confess that we have our doubts on the subject. Simon§ states that the salts are

*Bulletin de l'Académie Royale de Méd. de Belgique, 1845. † Comptes Rendus, vol. xix, p. 1045. ‡ Scrofula; its Nature, its Causes, its Prevalence, and the Principles of its Treatment. London, 1846. § Animal Chemistry, vol. i, p. 309.

diminished, and Nicholson,* in an excellent paper on this subject, which Mr. Phillips would have done well to consult, has shown that the albumen instead of increasing is nearly constant, and that the leading peculiarity is a great augmentation of water. We trust that in the next edition Mr. Phillips will communicate the numerical results of his analyses, seeing that at present he is at variance with all accredited observers.]†

8. *Depuration of the Blood.*—An excellent memoir has appeared from the pen of Dr. Barlow‡ on the means by which the different excretory matters are removed from the system.

9. *Pus in the Blood.*—Two cases having occurred to Heller§ in which the blood contained a very large quantity of pus, he took advantage of the opportunity to perform a number of experiments in reference to its detection. A small quantity of pus produces no very definite change in the blood, but when it occurs in any quantity it diminishes the amount of fibrin; indeed if the quantity be very large, the fibrin altogether disappears. He noticed that when blood containing pus is entirely deprived of fibrin, the blood-corpuscles subside sooner than the pus-cells, so that these latter form above the blood-corpuscles a dirty-white, flaky layer. When the quantity of pus has been large, he has seen the corpuscles form a layer of a line in thickness. When there was sufficient fibrin remaining to form a clot, he always observed the pus in the uppermost layers of it. From these experiments and from others which he performed by mixing very small quantities of pus with a large quantity of blood-corpuscles, he came to the conclusion that the smallest quantity of pus may be detected even in a large amount of blood. The suspected blood is first allowed to coagulate; the uppermost layer of the clot is then sliced off, mixed with distilled water, and strained through a linen cloth in order to separate the fibrin; to the strained fluid distilled water is to be added till all the blood-corpuscles are dissolved. The whole fluid is then allowed to rest for the space of an hour in a tall narrow glass; at the end of that time we find a sediment formed, which, if all the red corpuscles have been dissolved, consists of pus-cells with the chyle-corpuscles of the blood; if after washing this sediment with distilled water, a minute portion of it is placed beneath the microscope, the pus-cells will be distinctly seen, especially after the addition of acetic acid which brings their nuclei clearly in view. It is impossible to confound these cells with chyle-corpuscles which never possess nuclei, and are always much smaller than pus-cells.

* Northern Journ. of Med. Oct. 1845; or the Half-Yearly Abstract, &c. vol. ii, p. 343.

† It is to be regretted that in his observations on the chemical characters of the scrofulous deposit, Mr. Phillips has altogether overlooked the researches of Scherer, and the same remark applies to the chemistry of tubercle. We are glad to perceive throughout the whole of the work a desire to make use of chemical and microscopical observations; but we cannot see why Meggenhofen's analyses of human milk (see page 141 where, by the way, they are incorrectly quoted), made twenty years ago, should be given in preference to those of Simon, Haidlen, L'Heretier, or Clemm. The microscopic observations of Gulliver and Dalrymple are excellent, and give the work a degree of value which it would not otherwise, in a scientific point of view, have obtained. The author has evidently bestowed considerable labour in its completion, and it contains a large amount of statistical information.

‡ Med. Gaz. Jan. 23, 1846. § Archiv fur Physiologische und Pathologische Chemie und Mikroscopie, Heft iv, 1845.

## § IV.—*Digestion, Nutrition, and the Fluids of the Chylopoietic Viscera.*

10. *Healthy Saliva.*—Pettenkofer* has published a memoir on this subject, chiefly in reference to the presence and quantitative determination of the sulphocyanogen. On submitting saliva acidulated with sulphuric acid to distillation into a recciver containing carbonate of lead, he found that hydrochloric and acetic acids and sulphuretted hydrogen came over.

He then evaporated saliva nearly to dryness, extracted it with strong spirit, again evaporated and dissolved the residue in water, forming a neutral solution, which, on the addition of a very little neutral perchloride of iron, became very strongly reddened. On boiling it became turbid, and deposited some rust-coloured flocculi, but the intensity of the redness did not vanish. He then proceeds to show that if the redness was due to acetic or formic acid, it would have been affected by prolonged ebullition. The brown flocculi are, however, due to acetic or formic acid; acetic acid, in fact, as was shown by his distillation-experiment. In order to make sure that the redness was caused by sulphocyanide of iron, he took a fresh quantity of salivary extract, reddened it with a couple of drops of perchloride of iron, and brought it in contact with ferridcyanide of potassium. In a short time Berlin blue was produced. After, showing that the sulphuretted hydrogen which came over in the process of distillation could have arisen from no other source than the sulphocyanogen, he proceeds to its quantitative determination. He objects to Wright's† method of determining it as sulphocyanide of lead, and from that calculating the amount of sulphocyanide of potassium, on the ground that the chlorides and the extractive matter soluble in spirit and water, cannot fail to cause an error in the analysis, and that consequently Wright must estimate the sulphocyanogen above its true amount.

To avoid this error, Pettenkofer converts the sulphur of the sulphocyanogen into sulphuric acid, estimates the amount of the latter by a baryta-salt, and then determines the sulphocyanogen by a simple calculation. The following are the leading steps of the process. He evaporates a weighed quantity of saliva, extracts it with alcohol, which he then evaporates, dissolves the residue in water, and having added some chlorate of potash, heats it to ebullition. Sulphocyanide of potassium and chloride of potash may be boiled together for a long time without any change being produced in either. On acidulating the hot solution with hydrochloric acid, the liberated chloric acid immediately oxydizes the sulphur of the sulphocyanogen. A soluble salt of baryta is then added, and the sulphocyanogen extracted from the dried sulphate of baryta.

100 parts of sulphate of baryta correspond with—

25·11 of sulphocyanogen, or
41·91 of sulphocyanide of potassium, or
35·08 of sulphocyanide of sodium.

In this mode of analysis it is, of course, requisite that no sulphate should occur in the solution with the sulphocyanides, and that no sulphates, hyposulphates, nor metallic sulphurets should be present. The latter are very unlikely

* Buchner's Report, Bd. xli, Heft iii.

† We think that Pettenkofer misunderstands Wright's mode of determining the sulphocyanogen. On referring to the German edition of Wright's collected Essays on the Saliva, which by the way are enriched with many valuable notes by Lehmann and other German chemists, we find that the mode of determining this constituent is not open to the objections brought against it by Pettenkofer. Wright determines the sulphocyanides from the ethereal extract of the evaporated saliva, and ether, if pure, should not contain chlorides or spirit-extract.

to be met with; the former are not soluble in spirit, and are therefore exeluded at an early stage of the process.

The memoir concludes with some remarks on the physiological origin of sulphocyanogen in this secretion. He regards it as derived from urea; the elements of sulphocyanide of ammonium and urea being the same, if we replace two atoms of oxygen in the latter with two atoms of sulphur; and further, because by their distillation they yield corresponding products, the urea yielding cyanurate of ammonia, and the sulphocyanide of ammonium yielding melum, which may be regarded as cyanurate of ammonia, from which the elements of water have been removed.

The author likewise states that, on treating urea with an alkaline sulphate, he has actually obtained a sulphocyanide.

11. *Healthy Bile.*—Platner, whose researches on the bile are in part already known to our readers (see vol. i, p. 342), has recently published an excellent monograph* on the subject. After a sketch of the chemical history of the bile up to the present century, he notices in detail the investigations of Thenard (1806), Berzelius (1814), Gmelin (1826), Fromherz and Gugert (1827), Demarçay (1838), Berzelius's second memoir (1840 and 1842), Kemp, Theyer, and Schlosser (1843), before proceeding to give his own views on this obscure secretion. These are essentially the same as described in vol. i, but are followed by a very important section on the combinations of bilifellinic acid with various organic matters, as albumen, casein, fibrin, pepsin, artificially digested albumen and fibrin, tritoxide of protein, gelatin, sugar, &c. Bilifellinic acid, it must be remembered, is a mixture of bilin with the acid combined in the bile with soda. Then comes a section on the products of decomposition of the bile, which concludes the first part. The second part treats of the uses of the bile, and is based on the experiments above referred to. "I have shown," he observes, "that many organic bodies, as, for instance, the protein-compounds, albumen, fibrin, and casein, which form the greater part of our food, if they have been previously acidulated, decompose the bile; that in this case the soda of the bile combines with the acid added to the protein-compound, which, on the other hand, unites with the bilifellinic acid, there thus being a double decomposition. I have further shown that the bilifellinates of albumen, casein, and fibrin are very much more insoluble than simple albumen, casein, or fibrin. If there is a sufficient quantity of bile in the stomach at the commencement of digestion, then the gastric juice being acid, the bile is decomposed, and the protein-compounds are converted into bilifellinates, and, to say the least, their digestion is thus impeded. In fact, it is rendered impossible, for these substances do not dissolve, even when digested for several days in artificial digestive fluid. I have further shown that bilifellinic acid can enter into combination with pepsin, the organic matter of the gastric juice, which is essential to digestion, and in this state of combination becomes inert. Hence the evils of bile in the stomach during the commencement of digestion. Since the digestion of the substances occurring in the stomach does not proceed simultaneously at all points, the peripheral being digested before the central portions, there must be a period at which some of the matters are quite digested, while others remain unacted on. If bile is present, the bilifellinic acid combines with the digested protein-compounds; but these are, as I have shown, soluble in acetic acid and the alkaline carbonates, indeed partially in water. Since the gastric juice contains, according to some chemists, acetic acid, and since, further, it may readily be formed in the act of digestion from gum or sugar, the digested protein-compounds will not be rendered insoluble by the action of bile. If, however, no acetic acid should be present, these bilifellinates would be subsequently dissolved by the alkaline carbonates, in the

* Ueber die Natur und den Nutzen der Galle. Heidelberg, 1845.

small intestine. The above observations in part elucidate the uses of the bile. All combinations of organic bodies with bilifellinic acid possess, to a greater or less degree, the power of withstanding decomposition. When the bile comes in contact with the chyme, the acidity of the gastric juice is neutralized by the soda of the bile. From what has been already stated this appears a mere accessory use. The combining of the acid of the gastric juice with the soda of the bile has for its object the liberation of the bilifellinic acid, which then combines with the elements of the food. If the food were not combined in this manner with the bilifellinic acid, it would, sooner or later, undergo decomposition, to the loss of its nutrient powers." Such are Platner's views, but he owns that they are in some points deficient. The experiments to which he refers in the above extract are ingeniously devised, and seem to have been carefully executed; we think, however, that it is doubtful whether the artificial digestive fluid used in these experiments is sufficiently identical in all essential points with the gastric juice to admit of conclusions drawn from the one applying to the other. He also assumes a little more than he is entitled to respecting the acids of the gastric juice.

Redtenbacher* has published the analysis of taurin referred to in our previous reports. The mean of four analyses was

| | |
|---|---|
| Carbon . . . | 19·28 |
| Nitrogen . . . | 11·25 |
| Hydrogen . . . | 5·73 |
| Oxygen . . . | 38·04 |
| Sulphur . . . | 25·70 |

which corresponds with the formula $C_4\ N\ H_7\ O_6\ S_2$.

He has likewise made some interesting observations on the action of nitric acid on choloidic acid and cholesterin.

In our last Report we gave two analyses of healthy and two of diseased bile, by Frerich. His memoir contains several other analyses, that may with advantage be transferred to our pages, more especially as the chemistry of morbid bile is in a very imperfect condition.

12. *Fœtal Bile.*—Frerich analysed the bile of twins born at the sixth month. The following table represents the composition of the dried contents of the intestinal canal.

| | 1. | 2. |
|---|---|---|
| Cholesterin, olein, and margarin . | 1·8 | 15·4 |
| Biliary resin soluble in anhydrous alcohol | 12·3 | 15·6 |
| Epithelium, mucus, pigment, and salts | 85·9 | 69·0 |
| | 100·0 | 100·0 |

The large amount of dark pigment is indicative of the secreting power of the liver during a period when the lungs are unable to eliminate carbon.

13. *Morbid Bile.*

*Bile in Diseases of the Liver.*

| | Fatty Liver. | | | Waxy Liver. | Granular degeneration of the Liver. | |
|---|---|---|---|---|---|---|
| | 1. | 2. | 3. | | 1. | 2. |
| Water . | 86·98 | 96·00 | 86·55 | 94·42 | 91·51 | 87·94 |
| Solid constituents | 13·02 | 4·00 | 13·45 | 5·68 | 8·49 | 12·06 |
| Bilate of soda | 8·30 | 2·51 | 8·20 | 2·77 | 4·50 | 8·82 |
| Fat . | 0·70 | 0·09 | 0·44 | 0·21 | 0·42 | 0·54 |
| Mucus, protein-compounds, and salts | 4·02 | 1·40 | 4·81 | 2·70 | 3·57 | 2·70 |

* Annalen der Chemie und Pharmacie, Feb. 1846.

*Bile in Typhus Fever.*

| | 1. | 2. | 3. | 4. |
|---|---|---|---|---|
| Water . . | 96·99 | 94·94 | 96·08 | 94·45 |
| Solid constituents | 3·01 | 5·06 | 3·92 | 5·55 |
| Bilate of soda | 2·04 | 3·88 | 2·63 | 4·14 |
| Fat . . | 0·10 | 0·02 | 0·09 | 0·15 |
| Mucus, protein-compounds, and salts | 0·87 | 1·16 | 1·20 | 1·26 |

*Bile in Scrofulosis.*

| | 1. | 2. | 3. |
|---|---|---|---|
| Water . . . | 96·94 | 96·00 | 96·95 |
| Solid constituents . . | 3·06 | 4·00 | 3·05 |
| Bilate of soda . . | 2·18 | 2·81 | 1·78 |
| Fat . . . | 0·09 | 0·20 | 1·21 |
| Mucus, protein-compounds, and salts . . . | 0·71 | 0·99 | 1·06 |

*Bile in Tuberculosis complicated with fatty Liver.*

| | 1. | 2. |
|---|---|---|
| Water . . . . . | 84·97 | 91·00 |
| Solid constituents . . . | 15·03 | 9·00 |
| Bilate of soda . . . | 8·32 | 9·94 |
| Fat . . . . . | 0·25 | 0·09 |
| Mucus, protein-compounds, and salts . | 6·46 | 2·97 |

*Bile in Dropsy from Heart-disease.*

| | |
|---|---|
| Water . . . . | 90·96 |
| Solid constituents . . . | 9·04 |
| Bilate of soda . . . | 5·84 |
| Fat . . . . | 0·56 |
| Mucus and salts . . | 2·64 |

13. A memoir has been presented to the Academy of Sciences by Mialhe* "on the digestion and assimilation of amyloid and saccharine matters" on which the reporters (Magendie, Flourens, Milne Edwards, and Payen) state that he has satisfactorily proved the existence in the saliva of the peculiar substances described in p. 345 of our last volume, and which appear to be in all respects identical with diastase.

14. Bernard† has presented a memoir on the differences in the phenomena of digestion and assimilation in the carnivora and herbivora. In a large number of dogs fed exclusively on meat (either raw or cooked) and killed during the act of digestion, it was found that the chyme was acid in the small intestine, the chyle was opaque, homogeneous, and milky, and the urine clear, of an amber colour, and acid. In rabbits fed entirely on vegetable food and observed under similar circumstances, the chyme was acid in the small intestines, the chyle in the thoracic duct barely opalescent, and the urine turbid, whitish, and very alkaline. On submitting dogs and rabbits to a similar diet, the urine in each became similar, and on feeding the rabbits with meat, and feeding the dogs with potatoes and carrots, all the phenomena were inverted. From these facts he concludes that the differences in the alimentary canal of the herbivora and carnivora bear only on the mechanical part of the act of digestion.

15. *On the Formation of Fat.*—We included in the list of "periodical literature" in our last volume the titles of several memoirs on this subject.

* Comptes Rendus, No 12, 1846. † Ibid.

The conclusions of Persoz, deduced from observations made on fattening geese with maize, are.—

1. That the goose during the process of fattening, not only assimilates the fat contained in the maize, but that it forms a certain quantity at the expense of the starch and sugar of the grain, and possibly also from its own tissues, since the quantity of fat formed in it is usually more than double that found in the maize.

2. That, during the process of fattening, the blood changes its composition; that it becomes rich in fat, and that the albumen disappears or is modified.

3. That there appears to be a certain relation between the development of the liver and the amount of fat produced.

Boussingault's results are thus summed up by himself, in a letter addressed to the Academy of Sciences. "My experiments," he observes, "prove (1) that pigs at eight months old have more fat in their bodies than they can have received in their food. (2) Fed on potatoes alone for six months they will have no more fat than that contained in the potatoes. (3) In the process for fattening pigs, more fat is formed than is found in their food. (4) Aliments which cannot themselves be converted into fat greatly nourish the bodies of pigs when mixed with fat, although fat alone enfeebles the animal. (5) Those kinds of food which produce fat and which only contain traces of fat ready formed, are always rich in the constituents of blood." These experiments, associated with those of Dumas and Milne Edwards on the formation of bees'-wax, with those of Playfair on the production of milk in the cow, and with the discovery by Pelouze and Gelis that the fermentation of sugar yields butyric acid, seem entirely to do away with the theory so long and strenuously maintained by the French chemists, in opposition to Liebig, that all the fat found in the animal body is derived from plants where it actually existed as fat. Mulder* remarks on this point that "the opinion that fats may really be produced in the animal body from the food, is strongly supported by the fact, that *some* fats are actually and necessarily produced, for instance, the fats of the brain, cholesterin, cetin, the fats of the genus capra, &c. Now, if fats are produced in the animal body, it must be either from other fats or from other substances, such as starch. Both processes are the same, in so far as in every case there must be a rearrangement of the elements. In a scientific point of view, therefore, there is nothing unlikely in the opinion that animals are able to produce fats." The truth appears to be that the fat of the food is the usual and natural source of the fat of the animal; but if the food be deficient in fat, the animal appears, in certain circumstances, undoubtedly to have the power of forming it from starch, sugar, and other substances.

16.—*Nutrition.* In connexion with the nutrition of the chick we must not omit to notice a very elaborate memoir by M. Gobley, entitled "chemical researches on the yolk of the egg."†

The following are his most important results. After noticing the *vitelline*, described about two years ago by Dumas and Cahours, and confirming their results, he describes the oil, which is shown by his researches to contain margarin, olein, and cholesterin, besides two colouring matters, one yellow, the other red. In addition to this oil, he separated by boiling alcohol a viscid matter, consisting of olein, margarin, and phosphoglyceric acid combined with ammonia, forming a true ammoniacal soap. The phosphoglyceric acid admitted of easy separation by filtration after the addition of lime water, the oleate and margarate of lime remaining on the filter, while the phosphoglycerate passed through it. This is a very interesting discovery both in a physiological and chemical point

* The Chemistry of Vegetable and Animal Physiology, English edit. p. 263.

† Journal de Pharmacie, Jan. et Feb. 1846.

of view, for phosphoglyceric acid has always hitherto been regarded as a mere artificial compound of glycerin and phosphoric acid. Moreover, the presence of an ammoniacal soap is important, since in the animal kingdom the fatty acids have hitherto only been found in combination with soda. The composition of the liquid obtained on heating the yolk with water is also highly remarkable, for we find in it all the principles which chemists have met with in gastric juice; lactic acid, the chlorides of sodium and potassium, muriate of ammonia, sulphate of potash, the phosphates of lime and magnesia, and animal matter. The solvent property of the lactic acid leads to the belief that it is the principal agent of digestion in the young chick, and that through it a part of the phosphates penetrate into the body of the young animal.

The following is the composition of 100 parts of the yolk of egg:

| | |
|---|---|
| Water | 51·486 |
| Vitelline | 15·760 |
| Margarin and olein | 21·304 |
| Cholesterin | 0·438 |
| Oleic and margaric acids | 7·226 |
| Phosphoglyceric acid | 1·200 |
| Hydrochlorate of ammonia | 0·034 |
| Chlorides of sodium and potassium, and sulphate of potash | 0·277 |
| Phosphates of lime and magnesia | 1·022 |
| Extractive matter | 0·400 |
| Ammonia, colouring matter, traces of lactic acid, iron, &c. | 0·853 |
| | 100·000 |

We have given this analysis fully because the author is prosecuting the chemical investigation of the egg in the different stages of incubation, and it will therefore prove useful as a standard of comparison.

In connexion with the chemistry of the egg we must not omit to notice the discovery (and in a physiological point of view it is a very important one) of sugar of milk. Winckler* has discovered it in two cases in eggs which appear to have been sat upon. From the two eggs he obtained about eight grains of sugar of milk.

17. *On the Proportion of Nitrogen in Alimentary Substances taken as a comparative measure of their Nutritive Power.*

Dr. Schlossberger and Mr. Kemp† have published a series of experiments on this subject. They commence with a brief review of the labours of previous observers (Boussingault,‡ R. D. Thompson,§ Schlossberger and Döpping)‖ before proceeding to the relation of their own experiments. In order to ensure uniformity in their results, all the substances made the subject of observation were first dried at 212° F., and then analysed according to the method of Varrentrap and Will.

With respect to muscular fibre, they observe that the quantity of nitrogen contained in it seems to be identical from whatever part of the animal kingdom it may be obtained. In contradistinction to a very generally-received opinion, they show that the muscles of fish are as rich in nitrogen as those of higher animals; although, at first sight, owing to the presence of a greater quantity of water, and in some cases, as the eel, to a difficultly separable fat, its amount appears very much lower. Further, as the proximate principles are essentially the same in both classes of animals, they ought to prove equally

* Buchner's Report, Bd. xlii, Heft i. † London and Edin. Phil. Mag. Nov. 1845.
‡ Economie Rurale, Paris, 1844, vol. ii, p. 438. § London and Edin. Phil. Mag., Nov. 1843. ‖ Liebig's Annalen, Oct. 1844.

nutritive, although this proposition is also opposed to another very general prejudice.

"According to our scale," they observe, "the oyster does not seem nearly so nourishing as it is generally reputed to be by common opinion, although it is possible that the protein-compounds in the lower classes of animals may be found to be much richer in phosphorus, sulphur, and the phosphates than in the higher. Should this prove to be the case, we can see that although the proportion of nitrogen may not be so great, nevertheless that they might act more powerfully as *stimulants*, which, as regards the oyster, is believed by some of our best physicians."

With respect to the capability for nutrition, they grant that the physical condition, the state of admixture, the peculiar kind of protein-compound, the amount of water and other inorganic matters, of fat, and lastly, the effects of cookery, must necessarily have a great influence on the physiological effects of the food.

There is one consideration in particular which requires notice, namely, the distinction between the absolute amount of nutritive matter and that portion of it which is in a condition to be easily digested and assimilated. Thus an aliment, abounding in nutritive matter, may be inferior to one with a much smaller quantity as regards the nourishing effects produced by it, if in the first of these cases only a part, in the second, the whole may be easily absorbed and assimilated. This is one of the questions, any progress in the elucidation of which can be expected to be made by the co-operation alone of the physiologist and chemist.

They conclude their paper with the following table. Assuming the amount of nitrogen in human milk, perfectly dried at 212° F. to be represented by 100, the degree of nutritive power of other alimentary substances may be expressed by the following numbers:

*Vegetable.*

| | | | |
|---|---|---|---|
| Rice | 81 | Carrots | 150 |
| Potatoes | 84 | Brown bread | 166 |
| Turnips | 106 | Agaricus canthearellus | 201 |
| Rye | 106 | Peas | 239 |
| Maize | 100 to 125 | Agaricus russula | 264 |
| Barley | 125 | Lentils | 276 |
| Oats | 138 | Haricot beans | 283 |
| White bread | 142 | Agaricus deliciosus | 289 |
| Wheat | 119 to 144 | Beans | 320 |

*Animal.*

| | | | |
|---|---|---|---|
| Human milk* | 100 | Mussel, boiled | 660 |
| Cow's milk | 237 | Ox liver, raw | 570 |
| Oyster | 305 | Pork-ham, raw | 539 |
| Yolk of eggs | 305 | " boiled | 807 |
| Cheese | 331 to 447 | Salmon, raw | 776 |
| Eel, raw | 434 | " boiled | 610 |
| " boiled | 428 | Liver of pigeon | 742 |
| Liver of crab | 471 | Portable soup | 764 |
| Mussel, raw | 528 | White of egg | 845 |

* Human milk is, according to most analyses, one of the poorest in casein, and in this respect is far inferior to that of the cow, but in consequence of this may probably be more easily digested. The amount of nitrogen in milk, which corresponds to that of casein, comes much nearer to the proportions contained in vegetables than any other kind of aliment from the animal kingdom.

*Animal.*

| | | | |
|---|---|---|---|
| Crab, boiled | 859 | Pigeon, raw | 756 |
| Skate, raw | 859 | " boiled | 827 |
| " boiled | 956 | Lamb, raw | 833 |
| Herring, raw | 910 | Mutton, raw | 773 |
| " boiled | 808 | " boiled | 852 |
| " melt of | 924 | Veal, raw | 873 |
| Haddock, raw | 920 | " boiled | 911 |
| " boiled | 816 | Beef, raw | 880 |
| Flounder, raw | 898 | " boiled | 942 |
| " boiled | 954 | Ox lung | 931 |

## § V.—*The Urine.*

18. *Healthy Urine.*—M. Chambert* has published a long essay on 'The Salts and Density of the Human Urine in a State of Health.' The following tables are apparently the most valuable part of the memoir:

*Urine of twenty-four hours.*

The results of twenty-four experiments with the urine of men from 20 to 25 years of age.

| | Qty. of urine in grammes.‡ | Density. | Amt. of salts in grms. | Salts in 1000 parts. |
|---|---|---|---|---|
| Mean | 1034·37 | 1025·6 | 14·854 | 13·024 |
| Maximum | 1590 | 1034·7 | 23·636 | 18·055 |
| Minimum | 685 | 1017·6 | 6·993 | 8·161 |

*Urine of Digestion.*

From twenty-four experiments on the urine passed after a meal he deduced the following table:

| | | | | |
|---|---|---|---|---|
| Mean | 278·5 | 1027·1 | 4·640 | 16·394 |
| Maximum | 424 | 1037·9 | 10·658 | 21·370 |
| Minimum | 137 | 1021·0 | 2·126 | 11·190 |

*Morning Urine.*

| | | | | |
|---|---|---|---|---|
| Mean | 448 | 1022·7 | 4·201 | 9·332 |
| Maximum | 686 | 1035·0 | 10·079 | 19·102 |
| Minimum | 274 | 1014·7 | 1·227 | 3·580 |

*Urine after drinking.*

| | | | | |
|---|---|---|---|---|
| Max. of 5 experi. | 672 | 1012·1 | 14·203 | 21·130 |
| Min. ditto | 523 | 1007·0 | 1·288 | 2·463 |

Taking a general view of the preceding results, we see—1st, that the urine of digestion is denser and contains more salts than the morning urine; 2d, that the inorganic principles stand in a direct ratio with the salts introduced with the food; and, 3d, there is not even an approximation to a ratio between the density and the amount of salts.

19. *Extractive Matters of Urine.*—Scherer† has published an elaborate memoir with numerous analyses, on this subject. The following are his principal results, as far as they affect physiology and pathology:

A. The greater part of the matter hitherto described as extractive matter of

* Recueil des Mémoires de Méd. et de Pharmacie Militaires, vol. lviii, p. 328.
† Annalen der Chemie und Pharmacie, Feb. 1846. ‡ The gramme = 15·4 grains.

urine is a peculiar substance analogous to the animal pigments. Hence its most simple name is urine-pigment.

B. Its elementary composition varies with the mode of living, &c.

C. It is precipitated by various chemical re-agents, especially by acids, and by the neutral and basic acetate of lead; but the precipitate in different urines has a different composition.

D. Urine-pigment is distinguished from bile-pigment (which probably arises from venous blood) by containing less carbon and hydrogen.

E. We may conclude with great probability that both bile- and urine-pigment are formed from the hæmatin of the blood, whilst the other substances occurring in those fluids are possibly formed from the protein-compounds of the blood and organic tissues. This view is rendered more obvious by placing the composition of the three substances in apposition.

| | Hæmatin (Mulder). | Bile-pigment (Scherer). | Urine-pigment (Scherer). |
|---|---|---|---|
| Carbon | 70·49 | 68·19 | 58·43 |
| Hydrogen | 5·76 | 7·47 | 5·16 |
| Nitrogen | 11·16 | 7·07 | 8·83 |
| Oxygen | 12·59 | 17·26 | 27·58 |

F. Since the urine-pigment does not always present the same composition, it is obvious that it, and the substance from which it is formed by the vital process, is undergoing a continuous metamorphosis, which appears to be chiefly one of oxydation or putrefaction.

G. This oxydation affects both the carbon and the hydrogen, since the latter also occurs in varying quantity.

H. By the prolonged use of a large quantity of highly carbonaceous food, as, for instance, fat, the urine-pigment seems to be discharged in a less highly oxydized condition.

20. For an account of the colouring matters — uroxanthin, uroglaucin, and urrhodin, recently described by Heller, and referred in p. 363 of our last volume, we must refer to Simon's 'Animal Chemistry,' vol. ii, p. 522.

A work has also been published by Dr. Aloyse Martin,* of Munich, on urocyanin and other colouring matters of the human urine, of which we have only seen a review in the Méd. Gaz. de Paris. No. 8. New series.

On treating albuminous urine with hydrochloric acid, there was found, after a lapse of 12, 24, or 36 hours, a blue deposit, somewhat clearer than indigo. It appeared amorphous, even under the microscope, was insoluble in water, slightly soluble in cold and more so in boiling alcohol and in ether. Nitrate of silver produced an abundant smoky violet precipitate, at the same time decolorizing the supernatant liquid. It was detected in pneumonia, acute rheumatism, typhoid fever, scarlatina, chlorosis, anæmia, various forms of dropsy, acute tuberculosis, scirrhus, and various forms of dyspepsia, arising from diseases of the liver or stomach.

21. *On the Determination of the Urea in Urine.*—The only points of any importance in which the memoir of Heintz (see last vol. p. 358) differs from that of Ragsky are, that according to the former, the extractive matters yield a little ammonia (about 0·18 in 1000 parts of urine); and further, that the amount of potash and ammonia must be carefully determined, because it is liable to considerable variations. His investigations are, to a certain degree, more satisfactory than those of Ragsky, since he not only determined the ammonia, but likewise the liberated carbonic acid.

* Ueber das Urokyanin, &c. Munchen, 1845.

22. *Urine in Disease.*—We may direct the attention of those of our readers who are especially interested in this subject to analyses of the urine in *diabetes mellitus* by Dr. Percy,* an analysis of the urine in a singular case of *sialorrhœa* by Dr. Glover,† and several analyses of urine in which oxalate of lime was present, by Mr. Stallard.‡ These last are the only cases in which a quantitative determination of oxalate of lime has been attempted, and we quote them as illustrating, to a certain degree, the conditions of the urine in which that abnormal constituent occurs.

| | Urine at bed-time. | Morning urine. |
|---|---|---|
| Specific gravity | 1030 | 1024 |
| Water | 921·20 | 931·00 |
| Solid constituents | 78·80 | 69·00 |
| Urea | 24·45 | 14·05 |
| Uric acid | 2·92 | 1·32 |
| Oxalate of lime | 0·44 | 0·12 |
| Indeterminate organic matter | 44·79 | 49·11 |
| Salts | 6·20 | 4·40 |

The urine of a man with *delirium tremens* has been analysed by Heller. (1) represents it previous to treatment, when it was of a deep yellow colour, soon became ammoniacal, and deposited a pretty copious sediment of mucus and ammoniaco-magnesia phosphate. The reaction was faintly acid, but soon became alkaline; (2) represents it after the use of lime water (two drachms daily), which were given with apparently good effect; the smell was more natural, and the reaction was alkaline. A sediment as before.

| | 1 | |
|---|---|---|
| Specific gravity | 1017 | 1014 |
| Water | 968·80 | 971·6 |
| Solid constituents | 31·20 | 28·4 |
| Urea | 3·94 | 5·0 |
| Uric acid | traces | 0·1 |
| Extractive matter, &c. | 22·66 | 10·1 |
| Fixed salts | 4·60 | 13·2 |
| Of which there was | | |
| Phosphate of lime | 0·23 | 1·8 |

The same chemist has likewise examined the urine in two cases of *coxalgia*. In the first case the urine was of a very dark yellow colour, but perfectly clear, with an extremely abundant sediment of uric acid in rhombic tables. The reaction was strongly acid. In the second case there was no sediment, and the reaction was only faintly seen.

| | 1 | 2 |
|---|---|---|
| Specific gravity | 1023 | 1018 |
| Water | 934·00 | 968·40 |
| Solid constituents | 66·00 | 31·60 |
| Urea | 7·47 | 6·86 |
| Uric acid | 8·00§ | 0·62 |
| Extractive matter | 34·93 | 9·12 |
| Fixed salts | 15·60 | 15·00 |

The urine in a case of *anasarca after variola* has likewise been analysed by the same chemist. The patient was a young girl; her urine was turbid, and

* Med. Gazette, Feb. 13 and March 6, 1846. † Ibid. Feb. 27, 1846. ‡ Ibid. Feb. 20, 1846. § Entirely sediment.

formed a tolerably copious sediment, containing—1, of cylindrical tubes partially covered with uric-acid crystals; 2, of clots of urate of ammonia similarly covered; and 3, of pus- and blood-corpuscles and pavement-epithelium. The fluid was strongly acid, retaining its reaction for four days, although kept in a warm room. It contained much uroxanthin (see 'Simon's Chemistry,' vol. ii, p. 523), and assumed a violet tint on the addition of nitric acid. In 1000 parts there were:

| | |
|---|---|
| Specific gravity | 1012 |
| Water | 961·80 |
| Solid constituents | 38·20 |
| Urea | 10·53 |
| Uric acid | 0·55 |
| Albumen and a little hæmatin | 6·80 |
| Extractive matter | 17·76 |
| Fixed salts | 2·56 |

The urine of a man with *miliary fever* has been submitted to analysis by Gorup-Besanez. It was examined on two occasions; early in the disease, and after a lapse of nine days.

| | | 1 | | 2 | |
|---|---|---|---|---|---|
| Specific gravity | | 1015·50 | | 1028·70 | |
| Water | | 972·08 | | 950·10 | |
| Solid constituents | | 27·92 | | 49·90 | |
| Urea | | 4·06 | | 12·17 | |
| Uric acid | | 0·18 | | 0·31 | |
| Fixed salts | soluble 8·85 | 10·11 | 20·30 | 22·27 | |
| | insoluble 1·26 | | 1·97 | | |
| Extractive matter, &c. | | 13·57 | | 15·15 | |

Although in both cases the reaction was acid, yet on boiling there was a copious deposit of earthy phosphates, from which we should be led to infer that these salts were retained in solution by carbonic acid.

We give the following analyses of the urine in a case of *diabetes insipidus* by the same chemist. The patient was one of the sisters at the General Hospital at Munich, who had exhibited symptoms of the disease for about half a year, but without any great disturbance of the general health. She drank 17 or 18 quarts of water daily, and passed a corresponding quantity of urine, which was pale, almost colourless, devoid of odour, and slightly acid.

| | Urine on July 5. | On July 23. |
|---|---|---|
| Specific gravity | 1001·80 | 1001·20 |
| Water | 947·00 | 996·72 |
| Solid constituents | 3·00 | 3·28 |
| Urea | 0·62 | |
| Uric acid | | |
| Fixed salts | 1·22 | 1·37 |
| Extractive matters | 1·16 | |

23. *On the means of detecting Sugar in Diabetic Urine.*—M. Cahen fils* has published a memoir on this subject, which, however, contains nothing of importance that may not be found in the Introduction to Simon's Animal Chemistry.

* Archives d'Anatomie Générale et de Physiologie, vol. i, pp. 41-53.

## § VI.—*Miscellanea.*

24. *Muscular Flesh.*—Bibra* has published an elaborate memoir on this subject, to which we shall most probably revert in our next report. We must here confine ourselves to analyses of human flesh. The pectoralis major muscle was used for analysis in both cases.

| | 1 | 2 |
|---|---|---|
| Water . . . . | 72·56 | 74·45 |
| Fibrin, vessels, nerves, &c. . | 16·83 | 15·54 |
| Cellular tissue converted into gelatin | 1·92 | 2·07 |
| Soluble albumen and hæmatin . | 1·75 | 1·93 |
| Water- and alcohol-extracts, with salts | 2·80 | 3·71 |
| Fat . . . . | 4·24 | 2·30 |

In the first analysis, the salts left on incineration amounted to 4·39%; in the second to 4·48%. Their composition was as follows:

| | 1 | | 2 | |
|---|---|---|---|---|
| Tribasic phosphate and carbonate of soda . . . | 72·95 | soluble salts 84·97 | 63·58 | soluble salts 78·88 |
| Chloride of sodium . . | 10·30 | | 13·44 | |
| Sulphate of soda . . | 1·72 | | 1·86 | |
| Earthy phosphates and peroxide of iron | 15·03 | | | 21·12 |

These analyses will be found to approximate closely to those of Marchand and L'Heretier, given in a note to p. 422 of the second volume of Simon's Animal Chemistry.

Whether the free acid which usually exists in flesh is lactic acid Bibra does not determine. Hoffmann† states, that from the water-extract of flesh, when treated with a salt of zinc, yielded crystals with the form of lactate of zinc. This, however, is evidently a test not to be relied on. (See Simon's Animal Chemistry, vol. ii, p. 129.)

25. *Vernix Caseosa.*—This secretion has been analysed by Buek;‡ who found

| | | |
|---|---|---|
| In 100 parts . | Water . . | 84·45 |
| | Fat . . | 10·15 |
| | Epithelium . | 5·40 |

The fat contained oleic and ether margaric or stearic acid.

The ash consisted of sulphates, phosphates, and carbonates of potash and lime, with traces of peroxide of iron.

26. *Concretions in the Lungs*, analysed by Gorup-Besanez, were found to contain:

| | |
|---|---|
| Fatty matters, with some soluble salts . . . . | 17·17 |
| Mucus . . . . . | 32·46 |
| Phosphate and carbonate of lime, with a little peroxide of iron . | 50·37 |

27. *Urinary Calculi.*—In our last Report we noticed the leading chemical characteristics of the most important calculi occurring in the human subject. In resuming this subject we have much pleasure in laying before our readers an abstract of an excellent memoir by Messrs. David Forbes and Wells, on the best and simplest mode of conducting a qualitative examination of a concretion of this nature. To render it more simple, they divide calculi into two classes.

I. Those which contain uric acid, either free or in combination.

II. Those which do not contain uric acid.

* Roser und Wunderlich's Archiv. Pathologischen Chemie, 1845, p. 130, note.

† Grundlinien der Physiologischen und

‡ De Vernice Caseosa. Diss. Inorg. quam scripsit Gust. Buek. Halis.

To ascertain to which class a calculus, or a lamina, if the concretion have not an uniform structure, belongs, we must proceed as follows. A grain or two of the calculus or lamina is placed in a small porcelain spoon, a few drops of nitric acid are let fall on it, and the whole is carefully evaporated to dryness over a spirit lamp.

If uric acid be present, a yellowish or pink residue will remain, which on the addition of a drop of ammonia changes to a magnificent purple, more or less deep in colour according to the proportion of uric acid present in the concretion.

Having in this way ascertained to which of these classes it belongs, we can now proceed with its analysis, and in the first case will suppose that the calculus under examination contains uric acid.

I. *Analysis of Calculi containing Uric Acid.**—We divide the examination into four parts, viz.:

A. Aqueous solution, containing the urates of potash, soda, ammonia, lime, and magnesia.

B. Acetic solution. Phosphate of ammonia and magnesia, peroxide of iron, carbonate of lime, and carbonate of magnesia.

C. Hydrochloric solution. Phosphate of lime, peroxide of iron, cystin, and oxalate of lime.

D. Insoluble. Uric acid, silica.

We proceed with the aqueous solution.

A. A portion of the calculus, previously reduced to fine powder,† is boiled in a small flask or beaker glass with about two ounces of water, for ten or twelve minutes, and the solution filtered whilst hot.

1. Acetic acid is added to a portion (about half an ounce) of this solution, and the whole allowed to stand for a short time.

*a*. A precipitate falls which is of a crystalline character. One or more of the urates mentioned above are present, and the precipitate will consist of uric acid, resulting from their decomposition.

The residue which was not dissolved must be again boiled with successive portions of distilled water, until the latter ceases to leave a residue upon evaporation, and the liquid thereafter filtered; this solution is then examined according to 2. The portion not dissolved by water is to be preserved for examination, which is conducted as if no precipitate of uric acid had fallen from the aqueous solution upon the addition of acetic acid.

*b*. No precipitate falls. Absence of the urates of lime, magnesia, potash, soda, and ammonia. The digestion with water may be omitted, and the calculus at once examined, according to B. (See next page.)

2. The aqueous solutions (A, 1, *a*), after being mingled with the portion to which acetic acid has been added (A, 1), are to be rendered strongly acid by the further addition of acetic acid, and allowed to stand for some time in order to deposit the uric acid, which must be removed by filtration. The clear liquid is then to be evaporated to the bulk of about three fourths of an ounce. To a small portion of this liquid, placed in a test tube, caustic potash is added in excess, and heat applied. If ammonia (recognizable by its odour and action upon moistened test papers) is evolved, *urate of ammonia* has existed in the calculus.

* Gouty concretions, containing uric acid in combination with soda, are to be analysed according to these directions, by which also the urine of serpents has been examined.

† As it frequently happens that some of the soluble salts of the urine are retained in the many fissures and interstices of calculi, it is advisable that the portion operated upon (which must seldom exceed five or ten grains) should be well washed in cold water to remove them.

3. The remainder of the solution is now evaporated to dryness in a small porcelain capsule, and the heat gradually increased to low redness, when the acetates resulting from the decomposition of the urates by the addition of the acetic acid will be converted into carbonates. After allowing the residue to cool, a small quantity of water is poured upon it, the whole boiled for a few minutes, and then filtered. Any insoluble matter which may remain upon the filter is treated according to 4. The clear solution is now divided into two portions.

*a.* To one portion bichloride of platinum is added, when, if a yellow crystalline precipitate fall, *urate of potash* is present.

*b.* To the other portion antimoniate of potash is added; a white precipitate will indicate *urate of soda.* The deposition of both these precipitates is considerably promoted by stirring the solution with a glass rod.

4. The residue, insoluble in water, which remained upon the filter, may contain lime and magnesia. In order to separate these earths the insoluble matter is dissolved in hydrochloric acid.

*a.* The solution is neutralized by ammonia, and hydrochlorate and then carbonate of ammonia added, and the whole boiled; if a precipitate fall, *urate of iron* is present.

*b.* To the solution filtered from this precipitate, or to the clear liquid, should no precipitate have fallen, phosphate of soda is added; if a precipitate fall, *urate of magnesia* has likewise existed in the calculus.

B. The portion of the calculus, insoluble in water, is now boiled for a short time in acetic acid, and the liquor filtered. If an insoluble residue remain, it is well washed with water, and its examination conducted as C directs.

1. The acetic solution is rendered alkaline by the addition of ammonia.

*a.* No precipitate falls; absence of phosphate of ammonia and magnesia, and peroxide of iron. The clear solution is tested according to 2.

*b.* A white crystalline precipitate falls; this is composed of *phosphate of ammonia and magnesia.* Should this precipitate have a yellow or brown tinge, *peroxide of iron* is also present.

2. To the liquid in which ammonia has produced no precipitate, or to the filtrate from a precipitate, if one fall, hydrochlorate of ammonia in excess and then carbonate of ammonia are added, and the solution boiled.

*a.* If a precipitate fall, it will consist of *carbonate of lime.*

3. Phosphate of soda is now added to the solution filtered from this precipitate, or to the clear liquid. If a precipitate fall, *carbonate of magnesia* is present in the calculus.

*c.* The residue insoluble in acetic acid, is now to be digested in hydrochloric acid, and the latter liquid filtered if any portion remain undissolved. In the latter case, the insoluble matter is reserved for examination according to D.

1. The filtered solution is now carefully neutralized by ammonia.

*a.* No precipitate falls: absence of cystin, oxalate, and phosphate of lime. In this case the examination of the residue, insoluble in hydrochloric acid, may be proceeded with (vide D).

*b.* A precipitate falls: one or more of these substances may be present.

2. In order to separate these, the precipitate is digested in acetic acid, with the assistance of heat, and filtered from any insoluble matter, which last is to be examined according to 3. The solution, which may contain phosphate of lime and peroxide of iron, is rendered alkaline by the addition of ammonia.

*a.* No precipitate falls: absence of both phosphate of lime and peroxide of iron; proceed according to 3.

*b.* A precipitate falls: *phosphate of lime* is present; if instead of being

pure white it have a yellow or brown tint, *peroxide of iron* is also present.

3. The matter insoluble in acetic acid (vide 2) may now contain oxalate of lime and cystin. If the latter substance be suspected, it may be separated from the oxalate of lime by boiling with ammonia, which will dissolve the cystin, and leave the *oxalate of lime* undissolved.

By filtration and addition of acetic acid in excess to the filtered solution, *cystin*, if present, will be reprecipitated.

D. The residue, insoluble in hydrochloric acid, can contain only *uric acid* and silica; by boiling it with nitric acid, the former will be dissolved, and the *silica* remain behind. As, however, this latter substance is seldom found in calculi, except in very minute quantity, when it is suspected, a considerable portion of the concretion should be boiled with nitric acid, adding at the same time a little hydrochloric acid; if silica be present, it will remain undissolved, whilst the other constituents of the calculus will be retained in solution.

Having completed the analysis of a calculus, supposing it to have contained uric acid, it now remains for us to proceed with the method to be pursued in case no uric acid has been detected. In this case the substances which may enter into the composition of the concretion are the following:—Phosphate of ammonia and magnesia, carbonate of lime, carbonate of magnesia, peroxide of iron, cystin, phosphate of lime, oxalate of lime, and silica. The separation and detection of these bodies may be conducted, either as in the case of a calculus containing uric acid, observing only that the first process of solution in water may be omitted, and that in the last, where the residue would, if uric acid were present, be composed of that substance and silica, it can in this case consist only of the latter. Or the following method may be had recourse to, which will be found to answer equally well, and is in fact to be generally preferred, as when using it we omit the solution of the calculus in acetic acid, and simply dissolve it in hydrochloric acid.

II. *Analysis of Calculi not containing Uric Acid.*—1. A portion of the calculus (from five to ten grains) is taken,* and after being finely pulverized, is digested, with the assistance of heat, in hydrochloric acid. When the whole is dissolved, or when no further solution takes place, the solution is thrown upon a filter to separate any insoluble matter, which will consist of *silica*.

2. The clear hydrochloric solution is neutralized by ammonia, taking care not to add this reagent in excess; otherwise if cystin be present, it will be wholly or partially redissolved.

*a*. No precipitate falls: absence of phosphate of ammonia and magnesia, peroxide of iron, cystin, phosphate of lime, and oxalate of lime. The clear liquid is examined according to 3.

*b*. A precipitate falls: one or more of the above-mentioned substances are present. The solution is filtered, in order to separate this precipitate, and the clear solution examined according to 3. If this precipitate have a yellowish or brown tint, it will arise from the presence of *peroxide of iron*. The precipitate is digested with acetic acid.

*aa*. Complete solution takes place: absence of oxalate of lime and cystin. The clear solution may contain phosphate of ammonia and magnesia, and phosphate of lime. Perchloride of iron in excess, and a small quantity of hydrochloric acid are added to the clear solution, and then ammonia, until the whole has a strongly alkaline reaction. The precipitate which falls will contain peroxide and phosphate of peroxide of iron, the latter resulting from

* The analysis of calculi containing uric acid, after being previously digested in water, as directed at p. 324 A, may be conducted according to this method; the residue, insoluble in hydrochloric acid, being examined according to D.

the decomposition of the earthy phosphates; being of no further use it must be separated by filtration. Hydrochlorate of ammonia in excess, and then carbonate of ammonia, are added to the filtered solution, and the whole boiled.

1. If a precipitate falls, this will consist of carbonate of lime, and will indicate the presence of *phosphate of lime* in the calculus.

2. Phosphate of soda is added to the solution filtered from this precipitate, or to the clear solution, in case none had fallen; if a white crystalline precipitate fall it will consist of *phosphate of ammonia and magnesia.*

*bb.* The precipitate does not completely dissolve upon boiling with acetic acid. The solution is filtered, and the filtrate tested according to the direction given at 2 *b aa.* The insoluble matter remaining upon the filter is well washed with distilled water, and may contain oxalate of lime and cystin. Should the latter substance be suspected, it may be separated on boiling the residue in ammonia, when it will be dissolved, and the *oxalate of lime* left behind. Upon the addition of excess of acetic acid to the ammoniacal solution the cystin, if present, will be reprecipitated.

3. To the solution in which ammonia has produced no precipitate, or to the fluid filtered from the precipitate formed, carbonate of ammonia is added, and the solution boiled.

*a.* If a white precipitate falls it consists of *carbonate of lime.*

*b.* Phosphate of soda is added to the solution filtered from the precipitate, or to the clear liquid, in case none had fallen; if a white crystalline precipitate of phosphate of ammonia and magnesia fall, *carbonate of magnesia* has been present in the calculus.

We may take this opportunity of stating that in those cases in which we have very small quantities to operate on (as a minute fragment of a concretion or a little urinary deposit), the microscope is almost indispensable. To those who are not practised in the use of that instrument we would strongly recommend the perusal of the chapter "on the Microscope," in Messrs. Tulk and Henfrey's "Anatomical Manipulation."

# VI.

# REPORT ON THE PROGRESS OF FORENSIC MEDICINE.

BY WILLIAM AUGUSTUS GUY, M.B. CANTAB.

Fellow of the Royal College of Physicians, Professor of Forensic Medicine, King's College, Physician to the King's College Hospital, &c.

## § I.—*Toxicology.*

In this and in all succeeding Reports the poisons will be arranged in the same order as in standard works on the subject of Toxicology, instead of being placed, as in the first two volumes, in the order of the importance which they happened to possess during the period embraced in the Report.

1. *Poisoning by Sulphuric Acid.*—Mr. Fry of Brighton relates the following case, which is interesting, inasmuch as the circumstances were such as to mislead the medical attendant as to the real cause of death. "I was summoned to an inquest on an elderly female, who was found on the floor of her sitting-room, in the act of expiring. An hour before, she told her servant (who was occupied in another part of the house) she was going to take an emetic, a remedy to which she resorted occasionally for jaundice. An empty half-pint bottle, in which antimonial wine had been procured, was on a table close to her; she had not vomited. I knew that children had died without sickness after an over-dose of tartarized antimony, and it was not an unreasonable supposition that the feeble old woman had suffered fatal prostration from the same cause. The jury were about to return a verdict, when I applied my tongue to the mouth of the bottle, and became conscious of the presence of an acid, leave was immediately granted to inspect the body, and although the mouth was uninjured, the whole stomach was blackened, and so far disorganized as to allow of ready perforation by the finger. It contained above a pint of dark thick fluid, which yielded about an ounce of sulphuric acid. It was proved beyond question that the same bottle had really contained the wine of antimony, but whether the substitution of vitriol had been made by the woman herself with a view of suicide, or by some other person to destroy her, the jury were unable to determine."*

2. *Poisoning by Nitrate of Potash.*—Dr. Letheby† has recorded the particulars of a case of poisoning by this salt. Two successive doses of a third of two ounces, each dissolved in gin, were taken by a delicate female, aged 28, the one on the night of Monday, Nov. 10th, and the other on the following morning. From the first dose, which was taken after supper, she did not experience any inconvenience, but slept as usual; but after taking the second dose, she was instantly attacked with a severe burning pain in the stomach, and in a few minutes vomited, and fainted away. The pain in the stomach

* Prov. Med. and Surg. Journ. Jan. 1846, p. 6.

† Pharmaceutical Journ. Feb. 1846, vol. v, No. 8.

continued during the rest of the day accompanied by extreme depression and cold perspiration. At five in the afternoon she was ordered an emetic of ipecacuanha, which made her very sick, and kept her retching all night. In the morning she had become much worse, and was observed to be getting delirious; the agony of the stomach was still intolerable, her extremities bathed in a cold sweat, and she was not able to pass any urine.

About six o'clock in the afternoon of this day (Wednesday) her symptoms were excruciating agony of the stomach, extreme restlessness, cold extremities, pale and anxious countenance, and the pulse scarcely perceptible. Warmth was ordered to be applied to the hands and feet, a mustard poultice over the region of the stomach, and warm milk and water internally, which, however, was instantly rejected, together with a quantity of green slimy matter. A mucilaginous mixture, containing full doses of opium, was then prescribed, and soon gave her relief. Between ten and eleven o'clock of the same evening, reaction had come on, she was hot and feverish, the countenance was flushed, the pulse ninety-six and full, and the pain in the stomach somewhat mitigated, though still considerable; she was ordered to be bled to sixteen ounces, and a blister was applied over the epigastric region. She slept a little during the night, and felt much better in the morning; but she had not passed any water since Tuesday; but as there was no distension of the bladder, it was obvious that this arose from suppression of the secretion. In the course of the day, however, she passed a small quantity of urine, but it was with some difficulty. The symptoms after this period were an intense scarlet rash over the face and neck, pain in the stomach and throat, extending along the course of the œsophagus, tenderness at the pit of the stomach, and vomiting. Under the use of blisters to the pit of the stomach, diluents, enemas, and mild aperients, she gradually recovered.

The remaining third of the mixture was found to contain seven drachms of pure nitrate of potash, so that she could not have taken quite a third of the saltpetre at each dose.

The reader will find a good *resumé* of the leading recorded cases of poisoning by nitre in a short appendix to the above case.

3. *Poisoning by Arsenic. Symptoms.*—The following statement by Mr. Fry of Brighton strikingly illustrates the variable effects of arsenic. "A few years ago I had the care of several persons who were poisoned by drinking beer that was brewed in a copper previously used for boiling a large quantity of oxide of arsenic for agricultural purposes. The symptoms were so varied and extraordinary, that no medical man would have been likely to guess their causes. In one of the cases, (that of a man still living, and 76 years old,) the stomach was never painfully affected, but the limbs became œdematous, and all the toe-nails separated."*

4. *Elimination of the Poison from the System.*—M. Bonjean has had an opportunity of throwing additional light upon this question, the medico-legal importance of which may be judged of by a case which was lately tried at Auch. Lacoste, the presumed victim of poison, had, for some time previous to his death, been using a secret medicine, for the purpose of curing himself of an eruption of long standing; but he had ceased taking the medicine for fifteen days previous to his death, and on this point the prosecutor laid great stress. Arsenic was found by Parisian chemists in various organs of the body, and it was contended for the prosecution that Lacoste died from poisoning by arsenic, wilfully administered to him a short time previously to his death. This conclusion may be otherwise stated as follows. In the course of fifteen days our

* Prov. Med. and Surg. Journ. Jan. 7, 1846, p. 5.

organs free themselves entirely from any arsenic which may have been introduced into them by absorption; and after this short interval of time, every phenomenon referrible to the presence of the poison has disappeared. M. Bonjean contends, with justice, that this conclusion is opposed to ascertained facts; that in certain animals, such as the dog and the sheep, the elimination of arsenic is not complete before the lapse of four or six weeks, and that M. Flandin found traces of arsenic in the viscera of an animal which did not die till thirty-five days after the administration of the poison. M. Bonjean then confirms his views by the following case, establishing the same principle in reference to the human subject. M. X., on his way to the baths of Aix, in Savoy, called upon M. Bonjean, on the 24th May, 1844, with a prescription, signed by Dr. Cazenave, physician to the Hôpital Saint Louis at Paris, and containing arsenic as its active ingredient. This medicine was taken from May 26 to June 18, during which time the patient swallowed three quarters of a grain of arseniate of soda, equal to about half a grain of arsenic acid, or nearly a third of a grain of metallic arsenic. On the 19th of July following, or exactly a month after he had ceased to take the arsenical preparation, M. X. forwarded to M. Bonjean a pound of urine passed the previous evening. From this urine were obtained, by means of Marsh's apparatus, *twelve particles* of a clear reddish-brown colour, brilliant and shining, and which, on analysis, exhibited all the reactions peculiar to *metallic arsenic*. Every precaution was taken to avoid error. Thus it would appear that, after the lapse of a whole month, the organs of an adult had not got rid of three quarters of a grain of arseniate of soda taken in the course of twenty-four days. M. Bonjean believes that this fact may be adduced in confirmation of the principle that the absorption of remedies is the more complete the smaller the dose in which they are administered, and he states the following experiments on his own person in further support of that principle. After taking, in the course of a day, in doses of a glass every two hours, a *quarter of a grain* of the ioduret of potassium dissolved in a quart of water, I was able to trace, for *seven days*, the presence of iodine in my urine, and for *six days* in my saliva. After taking, on the other hand, the same quantity of iodurated water, in the course of one or two hours, I was not able to trace the iodine in my saliva at all, and in my urine for *two days* only. Lastly, I swallowed fasting, and at a single dose, *five grains* of the ioduret of potassium, dissolved in two ounces of water. Traces of iodine were discovered in the urine during *twenty-eight* hours, and in the saliva during *seventeen hours* only. During the whole day I suffered abundant salivation.*

5. *Tests.*—M. Lassaigne has proposed a new method of distinguishing arsenical from antimonial stains. It consists in exposing the spots obtained with Marsh's apparatus, for ten or fifteen minutes, to the action of the vapour evolved by iodine at 53° to 59° F. The porcelain capsule, on which the spots are deposited, is to be inverted over a saucer, in the centre of which a small quantity of dry crystallized iodine has been placed. The arsenical spots assume a pale yellowish brown colour, which becomes lemon-yellow by exposure to the air for a few minutes, and subsequently disappears by continued exposure to the air or a gentle heat. The antimonial stains, under the same circumstances, become deep reddish-yellow, turning orange on exposure to the air, and then remaining permanent. If a concentrated solution of sulphuretted hydrogen be poured into the capsule containing the iodurettted arsenical crust, those parts which were covered by the primary spots become pale yellow, from the conversion of the arsenious acid produced by the action of moist air upon

* Annales de Thérap. Sept. 6, 1845, and Month. Jour. of Med. Science, Dec. 1845.

the iodide of arsenic into the yellow sulphuret of arsenic. These spots disappear instantly when treated with a dilute solution of ammonia, which dissolves them. The ioduretted antimonial spots do not disappear in the air; after having been treated with solution of sulphuretted hydrogen, and assumed an orange-yellow colour, they resist the action of dilute ammonia for a considerable time, which thus constitutes a new means of distinguishing the arsenical spots. Another test consists in submitting the spots to the action of an alcoholic solution of iodine, which instantly dissolves the arsenical spots, and, on spontaneous evaporation, leaves a lemon-yellow stain. The antimonial spots remain unaltered when touched with the solution; but on spontaneous evaporation, the black antimonial stain is replaced by an orange-red one, composed of iodide of antimony, which is permanent at 86°-104° F., and on exposure to the air for several days is slightly altered in tint only. A solution of ioduretted hydriodic acid acts like the alcoholic solution of iodine, but more energetically. It is therefore to be preferred. An ioduretted solution of iodide of potassium instantly dissolves the arsenical spots, whilst it exerts no immediate action upon the antimonial ones.* [This mode of distinguishing the crusts of arsenic and antimony is simple, and the results are accurately described; but as the differences pointed out are merely differences in degree and time, a method confirmatory of the indications obtained by heating the respective crusts is still a desideratum.]

At p. 379, vol. i, of the 'Abstract,' will be found some notice of a process for detecting arsenic in organic liquids, by Dr. Letheby. The process in question was a modification of the methods of Lassaigne and Reinsch. In the 'Pharmaceutical Journal' for October, 1845, an additional process is described, which nearly resembles in some particulars that proposed by Fresenius. A crust of metal having been obtained by heating the horizontal tube connected with a Marsh's apparatus, the crust, which may be either arsenic or antimony, is to be identified—1. By transmitting a stream of sulphuretted hydrogen through the tube, at the same time that the heat of a spirit-lamp is cautiously applied to the metallic crust. The metal is thus converted into a sulphuret. 2. By transmitting through the tube containing the sulphuret a stream of gaseous muriatic acid (formed by heating the strong acid in a flask), when the antimonial crust will be dissolved, while the arsenical crust will be unaffected. 3. By transmitting through the tube the vapour of liquor ammoniæ, when the arsenical crust will disappear, while the antimony will be unaffected.

6. *Poisoning by Corrosive Sublimate.*—A fatal case of poisoning by this substance is recorded by Dr. Herapath of Bristol. The dose was a scruple of the bichloride dissolved in ten drops of hydrochloric acid, and forming a half-pint lotion. Vomiting occurred in two minutes, purging in the first quarter of an hour, salivation on the second day after swallowing the poison, and death nine days after the accident. Medical assistance was not obtained till an hour after the accident, when warm water, followed by several eggs beaten up, was injected by the stomach-pump. The eggs were retained, but the matters vomited after their administration gave distinct evidence of the existence of the poison. On examination after death, the stomach was found remarkably free from the usual appearance of mercurial poisoning, and there were none of the peculiar slate-gray or white patches, so frequently found after the administration of the poison in the solid form. The absence of pain and tenderness of the stomach and abdomen is pointed out as remarkable, considering that the stomach exhibited marks of acute inflammation. As there is no doubt that a portion of the poison passed into the bowels, Dr. Herapath suggests the use of

* Comptes Rendus, Dec. 15, 1845, and Chem. Gaz. March 2, 1846.

enemeta of albuminous fluids. The symptoms and post-mortem appearances are minutely detailed, and may be consulted with advantage.*

7. *Poisoning by Lead.—Case of poisoning by small and repeated Doses of Acetate of Lead.*—The following are some particulars of a case reported by Dr. Letheby.† The mother of Matthew Muir aged 6 years, labouring under hooping cough procured from a quack schoolmaster a mixture, which was found to consist of ten grains of acetate of lead dissolved in six ounces of water; of this the child took a teaspoonful, containing one fifth of a grain of sugar of lead two or three times a day, for nearly nine weeks, at the end of which time it got worse, and the medicine was discontinued. Two days after this the child died, and the death became a subject of inquiry in the coroner's court. The parents stated that the child was a fine healthy boy before this sickness, but that almost immediately after it had commenced taking the schoolmaster's medicine it began to fall away, and to complain of severe pains in its belly, for which it sought relief by lying on the belly, in which posture it also went to sleep; the belly also became hard and rather pinched in; the bowels were very confined, and the stools black and offensive, and there was an intolerable fetor of the breath; latterly the child got very drowsy, and was unable to move about as usual. Upon the day of its death it became convulsed, and a few hours previously fell into a state of coma, from which it was never roused.

Six days after death the body was examined in the presence of Dr. Rees and Dr. Monk. It was extremely emaciated, the skin presenting a dingy yellow appearance, the lips and inside of the mouth were bloodless, and of a pale lavender hue, while the gums had acquired a deadly blue colour, the colour deepening as it reached the margins of the teeth. The brain was rather softer than natural, but this might have been due to decomposition; the cortical substance, however, had a peculiar blueish gray colour, and there were about two drachms of clear fluid in the right ventricle. The spinal cord was perfectly healthy and firm. The lungs were slightly congested, especially upon the posterior aspect, and the trachea and bronchi were lined by a sanguineous secretion, and the bronchial glands were enlarged. The pleuræ contained a large quantity of bloody serum. The heart was somewhat larger than natural, and flabby, and, in common with the large veins, contained a little black uncoagulated blood. Abdomen: the stomach was not contracted, and contained about half an ounce of a thick brownish fluid; the intestines, both large and small, were contracted in some places, and dilated in others, and the small intestines presented several points of intussusception. The mesenteric glands were enlarged, but the mucous glands of the intestines were healthy throughout their course. The bladder and ureters were full of urine, and appeared as if their muscular coats had been paralysed. The rest of the viscera were healthy.

The chemical analysis detected lead in the brain, the muscles, the liver, the intestines, the blood, and the fluid of the ventricle; but it could not be discovered in the bile or urine. That part of the liver which surrounded the gall-bladder had acquired a deep blueish-black colour, from the action of the sulphur of the transuded bile upon the lead contained in the tissue of the liver; but the bile itself which remained in the gall-bladder was of its natural yellow colour.

Each dose in this case amounted to one fifth of a grain, and the whole quantity taken to from 26·6 to 33·3 grains of acetate of lead. It is a circumstance worth noticing that lead was recognized in the contents of the stomach, although none of the medicine had been given for two days.

* Lancet, Dec. 27, 1845. † Pharmaceutical Journal, Dec. 1845, vol. v, No. 6.

8. *Poisoning by Opium.*—Dr. Sharkey, of St. Helier's, Jersey, narrates two cases of poisoning by opium. In the first case the effects of the opium were apparently overcome, and the patient was left by his medical attendant. Early next morning, however, he was again summoned, and found his patient comatose. He died three hours afterwards. The body was examined twelve hours after death, when the following appearances were noted. A quantity of white froth surrounded the mouth and nose. Body still warm and rigid. Stomach healthy; containing a quantity of fluid, apparently gruel, which had not any smell of opium. Intestinal canal also healthy, as were all the other viscera. Head: veins of scalp gorged with blood, also the veins of dura mater, sinuses, &c.; no effusion in any part of brain. The contents of the stomach were tried by the usual tests, but exhibited no trace of morphia or meconic acid. The opinion that was formed of the cause of death was that a second dose of laudanum had been taken by the deceased, and this opinion was corroborated by the fact that on raking out the cinders of the fire-place, a small mass of melted glass was discovered, and also because it was proved in evidence that two separate purchases of laudanum, of half an ounce each time, were made by the deceased at the shops of two different druggists. The editor of the 'Medical Gazette,' in commenting on this case, observes that, although Dr. Sharkey's explanation may be correct, yet several cases are on record which show that a person may recover from the first symptoms of poisoning, and yet ultimately die from the effects of a single dose.

The second case is that of an able-bodied sailor, aged 32, who took medicinally two pills, each containing a grain and a quarter of the extract of opium, and was immediately attacked with a convulsive fit, and died. The following particulars of the appearances after death were noted. He was a most muscular man, very fat, short-necked, and plethoric. There was an extensive lividity of the integuments of the neck. On opening the head, a great quantity of blood flowed from the scalp, superficial veins, and sinuses of the brain. Some effused blood in a fluid state, and a small clot, were found surrounding the medulla oblongata. The stomach contained a quantity of fluid of a reddish tinge, probably from admixture of some wine which he had taken. Extensive ecchymosed patches were observed on its mucous membrane. Gall-bladder distended with bile. Heart flaccid and pale, nearly empty, and when handled, crepitated distinctly like a piece of lung; on dividing the large vessels, a small quantity of fluid blood escaped, containing a great deal of gas. Fermentation seemed to have commenced in the stomach, as many bubbles escaped in the fluid, which issued at the nostrils on pressing the epigastrium. Vena cava and venous system generally much gorged. On this case Dr. Sharkey observes that it is rather a remarkable one, especially as regards the condition of the heart and the blood contained in it. The temperature of the time scarcely allows the supposition that the contained gas could be the result solely of decomposition after the lapse of twenty-four hours, so that he was led to the conclusion that the blood must have been in a morbid condition, which predisposed to the fatal effusion. An important and difficult question was put to the medical witnesses by the jury, viz. "whether they thought that the dose of opium taken had accelerated the death." Now, says Dr. Sharkey, in any ordinary case, such a dose would have been innocuous. But if, as in this case, there was such a state of circulation as to cause a strong tendency to sanguineous effusion, it is undeniable that even such a dose would be hazardous; and it is quite certain that no judicious physician would think of prescribing opium in any quantity for such a patient.*

* Med. Gaz. Feb. 1846, p. 235.

9. *Poisoning by Hydrocyanic Acid. Smallest fatal dose.*—Case of the Parisian epileptics. The importance given to these cases in works on forensic medicine, and the additional attention drawn to them by the trial of Tawell, has induced the editor of the 'Pharmaceutical Journal' to investigate the subject, and to call to his aid the high authority of Professor Guibourt. Dr. Christison states that the Parisian epileptics were killed by a draught containing two thirds of a grain of pure acid. The quantity has been elsewhere stated at seven tenths of a grain. Dr. Christison's authority is Orfila, who states that each patient took about twenty grains (French=16·4 grains English) of medicinal hydrocyanic acid. This statement is not in strict correspondence with others contained in other parts of the same essay, nor in his 'Traité de Toxicologie,' and there is much discrepancy in the account given by other authorities. Calculations founded upon the several statements as to the strength of the preparation employed in the case of the epileptics give very different results. Christison has evidently assumed 4 per cent., while the acid prepared by Proust's process, described in the 'Codex Medicamentarius,' for 1818 contains only about $2\frac{1}{2}$ per cent. A calculation founded upon another statement made by Orfila would give 15 per cent. as the strength of the acid; and another calculation on a different statement, 5·67 per cent. According to a statement in the 'Journal de Chimie Médicale,' and a second in 'Devergie's Médecine Légale,' the quantity swallowed by the epileptic patients must have amounted to 4·62 grains of concentrated acid, instead of 0·7 of a grain. Not being able to arrive at any satisfactory solution of the difficulty, the editor of the 'Pharmaceutical Journal' wrote to Professor Guibourt for information as to the dose and strength of the acid actually taken. The following is an extract from his letter in reply: "For some time I directed the operations of the laboratory of the Pharmacie Centrale des Hôpitaux. At the period when the above catastrophe occurred the hydrocyanic acid and the syrup of hydrocyanic acid had just begun to come into use. We had previously prepared the acid by Scheele's process, which is described in the 'Codex Medicamentarius' for 1818, p. 387; afterwards we gave the preference to the process of Proust, which has been erroneously called Vauquelin's process, and which is described at p. 390 of the same work; in fact, we had frequently prepared the syrup of hydrocyanic acid according to this formula, and, as I have stated in my Pharmacopœia; this syrup, which contained $1\frac{1}{2}$ grains (French) of anhydrous hydrocyanic acid to the ounce (French), had been for some time employed without any ill effects being produced, although the dose was certainly rather strong. How did it happen, then, that this syrup, which had been frequently used in the hospital without inconvenience, produced the catastrophe which occurred at Bicêtre? I have stated the cause in the second edition of my Pharmacopœia. The fault, in the first place, rested with the author of the Codex of 1818, who states, at p. 390, that the acid prepared by the process of Proust or Vauquelin has the same density (that is to say, the same strength) as that of Scheele, while, in fact, it is much stronger. In the next place it is stated, at p. 389, that *the anhydrous acid, sp. gr.* 0·7, *mixed with an equal quantity of water, would be reduced to the density of Scheele's acid, the sp. gr. of which is* 0·9, and may be employed with much more safety for medicinal purposes. The consequence of this was, that the person who was engaged at the Pharmacie Centrale in preparing the syrup of hydrocyanic acid for the Hospital of Bicêtre, having none of the acid prepared according to the process given at p. 390 of the Codex, which alone ought to have been used, and finding it stated that this acid was the same as that of Scheele, finding it also stated on the previous page that Scheele's acid of specific gravity 0·9, may be made with one part of anhydrous acid and one part of water, he

made it in this way. Now, this acid contained, in fact, one third of its weight of anhydrous acid, so that the syrup sent to Bicêtre, and immediately employed there, contained one thirtieth of its weight of anhydrous acid, or 19 grains French weight (15·5857 troy grains) to the French ounce (472·56 troy grains.)" From this statement of Professor Guibourt, it is evident that the fatal dose administered to the Parisian epileptics, instead of containing only two thirds or seven tenths of a grain (troy) of anhydrous acid, contained at least $5\frac{1}{2}$ grains.*

10. *Experiments on Animals.*—A notice of several interesting experiments on the horse, by Mr. W. A. Cherry, with some judicious editorial remarks, will be found in the 'Medical Gazette,' Oct. 31, 1845. Five preliminary experiments were performed on as many horses not affected by any organic disease of the sensorium or nervous system. The dose administered was six drachms of Schecle's medicinal acid. With this dose the maximum effect was attained in from 10 to 12 or 13 minutes, and death took place in from 20 to 26 minutes. when the dose was increased to one ounce there was no corresponding increase of effect, nor did the mode of administration give rise to the differences that might have been anticipated. "There was no perceptible difference in the effect of the poison, or in the period of its action, whether it was absorbed from the mouth or fauces, or as a vapour from the surface of the bronchial tubes, or was injected (in the form of Scheele's acid) into the jugular vein." Such being the effect of the acid on horses in an ordinary state of health, the following experiment becomes very instructive. "A small horse, with defective vision, while going at a fast trot, came in contact with the wheel of a cart, knocking down the horse, which lay insensible. On seeing the animal, about an hour after the accident, he was lying on the side, pupils much dilated, stertorous breathing, power of sensation impaired in the fore, and lost in the hinder extremities. The symptoms were so decidedly those of fatal injury to the base of the brain, that the narrator proposed to destroy the animal, and proceeded to inject into the jugular vein six drachms of hydrocyanic acid, the effect of which was to restore the lost vital powers. He gained both sensibility and power in the hinder extremities; the eye lost its comatose appearance, with the contractility of the pupils; the pulse, which had been almost imperceptible, rose; the breathing increased, but not very much beyond natural respiration. These symptoms remained the same for half an hour, when it being imperative to put an end to the animal's life, one ounce more was given by the mouth. This certainly increased the effect, but did not destroy life. After waiting about 20 minutes longer, Mr. Cherry gave a *third* ounce, which, at the end of another half hour, did not produce death, and there was every probability of the animal recovering from the poison. He was at last obliged to divide the spinal cord between the first and second cervical vertebræ. Thus, in one hour and twenty minutes, this little animal took *two ounces and three quarters* of the most subtile poison known, without destroying life, and with every probability of recovery from its effects. Upon examining the brain, extravasation was found at the base of the cerebrum and medulla oblongata." In another horse affected by extensive disease of the brain and upper part of the medulla oblongata, six drachms of prussic acid (of which four were injected into the jugular vein, and two poured into the nostril eight minutes afterwards); death took place in about twenty minutes, being the shortest period in which the same quantity in one dose proved fatal to a horse free from cerebral disease. [The practical application of these facts in medical practice, and in medico-legal inquiries, is too obvious to re-

* Pharmaceutical Journal, May 1, 1845, p. 515.

quire lengthened comment. The analogy between recent injuries to the nervous centres and acute disease affecting those parts, in diminishing the susceptibility of the system to poisons, is worthy of remark.]

11. *Poisoning with Oil of Bitter Almonds.*—At a meeting of the Birmingham Pathological Society, Oct. 4, 1845, Mr. Dampier exhibited the stomach of a man who poisoned himself with the essential oil of bitter almonds. It was inflamed generally, and smelt very strong of the poison. The man entered a public house, drank some beer, called for some more, and was heard to mix something in it, and then drank the chief part of it; he immediately addressed the landlady, inquiring what he had to pay, and had just time to throw his spectacle case on the table, saying that was all he had, when he fell down dead. An ounce and a half bottle was found in his pocket, empty. The beer was not analysed, but about two drachms of oil of bitter almonds was found at the bottom of the remaining beer. The brain was engorged; the stomach was congested, and at this time, seventy hours after death, exhaled a very strong smell of plum-kernels.*

Another case of poisoning by the essential oil of bitter almonds was made the subject of inquiry before Mr. Wakley, at the House of Correction, Coldbath Fields, Tuesday, December 9, 1845. The dose in this case was two drachms, and the period within which it proved fatal may be inferred to have been any interval between somewhat less than three hours and an hour and a half. After swallowing the poison (how long after is unknown) the deceased announced feebly his name, walked with slight assistance, and remained standing for about five minutes. The treatment consisted in the use of the stomach-pump, the administration of ammonia, and the application of warmth to the extremities.†

A third case, which terminated favorably, is recorded by Mr. Frederic Hetley, house surgeon of the Middlesex Hospital. The following is an abstract of the case:—Nov. 29, 1845, at nine p.m., Harriett L——, ætat. 21, was brought into the Middlesex Hospital in a most excited state, not unlike that of a person who has freely indulged in champagne. She had been found in the street, with a broken bottle labelled "Poison," and smelling strongly of the essential oil of bitter almonds, lying near her. On being questioned, on her arrival at the hospital, as to her feelings, the girl answered slowly that she felt "dreadfully ill," and passing her hand over her face, she fell back in her chair and became insensible. The countenance at this time was pale, the respiration slow and regular (12 in the minute), the pulse 130-140 and very small, and the pupils contracted to the size of a pin's head. She continued in this state about three minutes, when the countenance suddenly assumed a pale livid hue. An attempt was now made to administer an emetic, but all power of swallowing had ceased. The stomach-pump was then applied, and the breathing, which both before and during the whole operation remained slow, became stertorous. The contents of the stomach were first drawn off, consisting of about two ounces of dark brown fluid, smelling strongly of bitter almonds. The stomach was now four times washed out with water, and a solution of chlorine was injected. Towards the termination of the operation there were occasional efforts to vomit, and involuntary discharges of urine and fæces. After the operation the patient was carried to bed, still comatose, and with the pupils unaltered. At the end of a quarter of an hour she appeared like a person in a deep sleep, from which, however, she suddenly roused, and, looking wildly about her, inquired where she was. The pupils now suddenly dilated to their fullest extent, and she was unable to see distinctly. She

* Prov. Med. and Surg. Jour. Jan. 14, 1846, p. 15. † Lancet, Dec. 13, 1845.

stated that she bought twopennyworth of oil of bitter almonds, which she swallowed in the street, then threw away the bottle, and almost immediately afterwards fell senseless on the pavement. She now complained of excessive burning heat in the region of the larynx and pharynx; was hoarse, and talking, she said, distressed her. There were some pain and heat in the epigastrium, but no tenderness on pressure. The pulse gradually fell to 100; the extremities were numbed, the arms and hands cold and livid, she was sleepy, but easily roused, and fell into a light sleep, in which she continued, except when roused to take her medicine, till morning, when she was removed by her friends.*

12. *Poisoning by Belladonna.*—Two cases of poisoning by belladonna are related by Dr. Gray in the 'New York Journal of Medicine.'† The first patient, a female child between two and three years of age, had eaten, as nearly as could be ascertained, from eight to twelve grains of the extract of belladonna. When seen by Dr. Gray, some thirty or fifty minutes after the poison had been taken, she presented the following appearances:—The expression of the countenance was that of a person in terror, pupils widely dilated and immovable, the tunica conjunctiva highly injected, and the whole eye prominent and preternaturally brilliant. The face, upper extremities, and trunk of the body exhibited a diffuse scarlet efflorescence, studded with innumerable papillæ, very closely resembling the rash of scarlatina; the eruption terminated abruptly at the wrists and flexure of the thighs, the rest of the body retaining the natural colour. Skin hot and dry, and pulse much increased in force and frequency. The patient's manner was apoplectic, respiration anxious and attended with the brazen, stridulous sound of croup. A constant, but unsuccessful effort at deglutition was observable, and at every renewal of the attempt the muscles of the throat and pharynx were thrown into violent spasmodic action; the venous trunks were much gorged. This state of partial coma, alternated with paroxysms of rapid automatic movement, attended with convulsive laughter. No well-marked convulsions made their appearance, although, during the brief periods of sleep into which the patient fell, a slight subsultus of the muscles of the face and extremities was noticed. The treatment consisted in the application of a mustard bath to the lower extremities,while water and pounded ice were applied to the head. An active emetic was immediately administered, whose operation was assisted by the application of local stimulants to the epigastric region, and the free use of warm diluents. The matter vomited contained several portions of the drug in a partially dissolved state. A strong decoction of coffee was now ordered, to combat the soporific effect of the poison, alternated with diluted liquor ammoniæ, for the purpose of decomposing any of the belladonna that might still remain in the stomach. The diuretic effect of the poison was next experienced, the patient evacuating an enormous quantity of limpid urine. The alarming symptoms passed off in about three hours after the commencement of the treatment, and the child soon recovered, with the exception of a moderate diarrhœa and a slight enlargement of the pupil.

Dr. Gray was himself the subject of the next case, having taken about eight or ten grains of the extract, in divided doses, in a few minutes, to relieve a neuralgic toothache. About an hour after the last dose the medicine began to induce its specific symptoms in the following order:—Vertigo, increasing to such an extent as to render it impossible to walk without staggering; dimness of vision; sometimes objects appeared double, and passed with an undulating motion before the eye. Dr. Gray observed that by a strong effort of the will this paralysis of the retina might for a moment be combated, but

* Lancet, Dec. 6, 1845. † See also Med. Times, Nov. 29, 1845.

only to return with greater severity when the mental effort had been abandoned. The appearance of the eye was much the same as in the first case, viz. the pupil immovably dilated, the eye prominent, dry, and exceedingly brilliant; the conjunctival vessels fully injected. There was total absence of lacrymation, and motion was attended with a sense of dryness and stiffness. The face was red and turgid, and the temperature and colour of the surface considerably augmented. Pulse full, and about 120 to 130. The feeling in the head was that of violent congestion, with a full, tense, throbbing state of the cerebral vessels, as if a ligature were tied about the neck. The tongue, mouth, and fauces were perfectly dry, as if they had been composed of burnt shoe leather. The secretions of the glands of the mouth, and the saliva, were entirely suspended. A draught of water, instead of giving relief, seemed only to increase the unctuous, clammy state of the mucous membrane. This sensation was most distressing in the pharynx. It induced a constant attempt at deglutition, and finally excited suffocating spasms of the fauces and glottis, renewed at every effort to swallow. A little saliva, white, and round like a ball of cotton, was occasionally evacuated. The slight delirium that followed the action of the narcotic was of a strange yet not unpleasant kind. The intellectual operations at times were very vivid. Thoughts came and went, and ludicrous and fantastic spectacles were always uppermost in the mind. He was conscious, he says, that his language and gesticulations were extravagant, yet he had neither power nor will to do otherwise than he did; and notwithstanding his bodily malaise, the mind was in a delightful state of exhilaration. The treatment was equally simple and efficacious; consisting of cold douche to the head and an emetic. Dr. Gray especially alludes to the diuretic action of belladonna, which he describes as tremendous. He observes that it does not seem to reach the kidneys until it has been some time in the stomach, and exerted its specific influence upon the brain. He remarks, in conclusion, that reasoning from its effects, as observed in his own case, he is induced to believe that it may become an important remedy in diseases, in the treatment of which at present it is but little used.

13. *Effects of Tobacco.*—Dr. Chapman was consulted by a member of Congress, in the meridian of life, and of a stout frame, who told him that from having been one of the most healthy and fearless of men, he had become "sick all over, and as timid as a girl." He could not even present a petition to Congress, much less say a word concerning it, though he had long been a *practising lawyer*, and had served much in legislative bodies! By any ordinary noise he was startled or thrown into tremulousness, and afraid to be alone at night. His appetite and digestion were gone; he had painful sensations at the pit of his stomach, and obstinate constipation. During the narrative of his sufferings, his aspect approached the haggard wildness of mental distemperature. On inquiry, Dr. Chapman found that his consumption of tobacco was almost incredible, by chewing, snuffing, and smoking. Being satisfied that all his misery arose from this poisonous weed, its use was discontinued, and in a few weeks he entirely recovered.

[The symptoms here detailed are those of mimosis inquieta, which supervene on the long-continued action of all causes of exhaustion in the female, and occasionally, though rarely, on a similar state of system in the male, intense mental application and onanism being its most frequent causes.]*

14. *Poisoning by Nux Vomica.*—Mr. Fry, of Brighton, relates the following case. "I was summoned to a young woman, four miles from my residence, who was said to have swallowed poison. On my arrival an hour afterwards,

* London Med. Gaz. Oct. 3, 1845.

her face exhibited strange and varying contortions; the eyes widely open; strabismus of ever-changing character; the pupils excessively dilated. She was quite unconscious; the breathing was laborious and interrupted; the pulse slow and irregular; the motions of the heart resembling an aggravated form of chorea Sancti Viti." The treatment consisted in the use of the stomach-pump, followed by aperients and stimulants. "The spasmodic symptoms subsided gradually. In about twelve hours she was restored to consciousness; but the pupils were unnaturally large for a fortnight, and it was a couple of months before the involuntary twitches had altogether ceased." The quantity of the poison swallowed was half an ounce.*

15. *Poisoning by Strychnia.*—Dr. James Watson has recorded the following interesting case. Agnes French, æt. 13, a patient under treatment for eczema capitis in the Glasgow Royal Infirmary, about half-past five p.m. swallowed three strychnia pills, which belonged to a paralytic patient in the same ward. Each pill contained a quarter of a grain of strychnia. Twenty minutes after taking the pills she said she felt a strange sensation in her head, and became almost immediately convulsed. The clerk was called, and visited her without loss of time. The following was her state. The arms were found extended and rigid, as also were all the muscles of her body, which was bent backwards at a considerable curve. Pupils natural; impulse of the heart strong; face much flushed; lips livid; breathing rapid and difficult, with marked spasms of diaphragm, but no spasm of glottis. Every few minutes she had a fit of general convulsions. The mind was unaffected, but great apprehension and anxiety for relief was expressed. The cause at first being unknown, six ounces of blood were abtracted from the temporal artery, and cold lotions were applied to the head and sinapisms to the extremities. Ten minutes after the symptoms began the owner of the pills told the cause, when a scruple of zinc was immediately given, and large draughts of warm water, which were eagerly swallowed by the patient. No vomiting, however, was induced for about a quarter of an hour, although the fauces were tickled with a feather; and when the emetic operated, it acted very sparingly. All this time the opisthotonos and universal muscular twitchings had continued most violent; but now, during one of the ineffectual attempts to vomit, the rigidity and spasmodic contractions suddenly ceased, the heart's action became imperceptible, and the respiration stopped. The face, which was before deeply flushed, became gradually pale from above downwards, her lips remaining livid. She was laid down, and seemed to recover slightly; her chest heaved slowly, and her heart beat feebly, and at long intervals. The flush also somewhat returned to the face, but with the exception of a few twitches, she had no recurrence of the spasms. The pupils were dilated, and the eyes fixed and turned upwards. The stomach-pump was now applied without any good effect. In a short time the respiration again ceased, and the beat of the heart could no longer be felt. The flush, which had been but slight, again descended, and disappeared on the neck. Artificial respiration and galvanism to the phrenic nerve were now tried in vain. The patient was dead. Death took place at three quarters past six p.m., little more than an hour after the poison had been swallowed, and in about three quarters of an hour after the first appearance of the symptoms. *Autopsy forty-four hours after death.* Face pallid, depending parts of the body very livid, abdomen tympanitic, limbs moderately rigid, fingers and thumb livid and bent. The integuments of the scalp bled freely on being cut; the brain and its membranes were quite natural, excepting turgescence of the velum interpositum and choroid plexus. The spinal cord healthy, and its investing membranes rather

* Prov. Med. and Surg. Jour. Jan. 7, 1846, p. 5.

vascular. The lungs were much congested with venous blood. *The muscles of the heart quite stiff, the right ventricle flattened into a sharp edge, and quite empty. The left ventricle also collapsed and empty, and the auricles in a similar condition.* Other viscera normal.*

16. *Poisoning by Urine.*—Dr. G. F. Collier records a case of this rare form of poisoning. The patient, a healthy labouring man, was advised by an old woman to drink, for nine successive mornings, the urine voided on going to bed. After swallowing the nauseous draughts, and, as the patient thought, before finishing the course, he was attacked by universal anasarca and ascites, with scanty, thick, high-coloured, and very offensive urine, sensation of weight in the head, debility, and shortness of breath. The urine was not albuminous. Under the use of brisk purgatives and diuretics, the patient recovered, and returned to his work in the space of ten days, and has since remained well.†

17. *Animal Charcoal as an Antidote.*—The researches of Graham, and the still more recent experiments of Chevallier,‡ would seem to point very strongly to the use of animal charcoal as an antidote to metallic poisons. Dr. A. B. Garrod, in a paper read at the Medical Society of London,§ has extended its use to poisons derived from the animal and vegetable kingdoms. The following are the results at which Dr. Garrod has arrived. 1. Animal charcoal removes all the active principles from vegetable substances, if added in proper proportions, even in a solution of hydrochloric acid of the strength of the gastric juice, and at the temperature of the stomach (100° F.) 2. The compounds of the animal charcoal with the poisonous principle have no injurious action on the animal body, and therefore, when animal charcoal is given with the poison, or before it has become absorbed, it will act as an antidote. 3. Animal charcoal will also form compounds with arsenious acid and other mineral substances, which combinations are also inert, and it is quite equal, if not superior, to the hydrated sesquioxide of iron as an antidote to arsenious acid. 4. A certain amount of the antidote is required; for example, half an ounce for one grain of strychnia, or about one scruple of nux vomica; if less is given, the poison can act by its excess above the antidote. 5. It is peculiarly adapted to poisonous substances whose activity depends on a small amount of inactive principle as opium, nux vomica, aconite, belladonna, stramonium, hemlock, &c. 6. The antidote itself has no injurious action on the system. Dr. Garrod proposes that in cases of poisoning we should remove as much of the poison as possible by the use of emetics or the stomach-pump, and then give a large quantity of the animal charcoal, diffused in warm water; if emetics are given with the antidote, sulphate of zinc would be preferable, as the animal charcoal would itself destroy the emetic property of ipecacuanha. He also suggests that perhaps animal charcoal would prevent the action of the poison of rabies, syphilis, of serpents, &c., if applied in the form of a poultice to the poisoned part. The charcoal used by Dr. Garrod was bone black, from which all the earthy matter had been removed by maceration in hydrochloric acid, and common bone black, prepared by Mr. Morson, Southampton row. The vegetable charcoals were comparatively inert.

## § II.—*Personal Identity.*

18. An exhumation was made, in the course of last year, on the site of the ancient priory of Lewes, which has some degree of medico-legal interest. Two

* On Idiopathic Tetanus. By James Watson, M.D., Senior Physician to the Glasgow Infirmary. Cormack's Month. Jour. of Med. Science, Dec. 1845, p. 908. † Lancet, Nov. 8, 1845. ‡ Abstract, vol. ii, p. 417. § See London Med. Gaz. Dec. 5, 1845.

skeletons were disinterred, of which one was supposed, from an inscription on the cist, and from local circumstances, to be that of Gundreda, fifth daughter of William I, and the other of her husband, William de Warren. The bones were of a firm texture, hard and solid, and in a high state of preservation. The female skeleton was nearly perfect. The principal point of interest is the fact of these bones having been buried 750 years. Judging from the length of the long bones in the male skeleton, the stature was probably above the ordinary height.*

19. A case of unusual interest, in which the question of personal identity turned partly upon the existence of nævi materni, ascertained by medical inspection, will be found in the 'American Journal of the Medical Sciences,' and in the 'Medical Times,' May 23, 1846. The case is too long for insertion in this place, but it will well repay perusal.

## § III.—*Fœticide, Infanticide, Legitimacy.*

20. *Abortion. Injection of an Irritating Substance into the Vagina.*—A young female, who had died suddenly, under circumstances of suspicion, was examined by order of the commissary of police of Strasburg. The abdominal viscera were found violently inflamed, and the intestines in a state of gangrene. M. Gerhardt, who had attended the deceased, stated that the symptoms present when he was first called led him to suspect that some attempt had been made to procure abortion. The deceased admitted that a female had given her some substance which had caused acute pain. She was delivered the day after, and died in a few days. The medical examination does not seem to have been very carefully performed, nor were the tissues examined. The nature of the substance which had been used was not, therefore, ascertained; but the prisoner was convicted, and condemned to ten years' imprisonment.† Cases of attempted abortion by means of irritating injections are not of common occurrence.

21. *Infanticide.*—A curious question has been raised by M. Orfila, namely, whether the ash of burnt wood can be distinguished from that of a newly-born infant. He has submitted this question to the test of experiment, and with the following result. The ash of a burnt fœtus, when calcined with potash in a porcelain crucible, yields cyanide of potassium; and when treated with dilute sulphuric acid, sulphuretted hydrogen is disengaged, and the acid solution contains biphosphate of lime. On the other hand, the ash of the oak and fir, when treated in the same manner, yields neither cyanide of potassium, sulphuretted hydrogen, nor biphosphate of lime. Turf-ash and the ash of the vine plant disengage a small quantity of sulphuretted hydrogen. The ash of coke yields an abundance of sulphuretted hydrogen, and a marked proportion of biphosphate of lime, but no cyanide of potassium. But the ash of oak or fir, when mixed with coke-ash and the residue of animal matter, yields similar results to those obtained from the ash of the fœtus; but the quantity of cyanide of potassium, sulphuretted hydrogen, and phosphate of lime is comparatively small. The author deduces from his experiments the caution that in pronouncing upon the nature of ashes, we can only be sure that they have proceeded from the combustion of a fœtus when we are in a position to assert that the wood employed in the combustion contains neither nitrogen nor sulphur, which is the case with oak or fir.‡ These chemical tests can only be required where the ashes do not contain any fragment of osseous matter.

22. *Diseases of New-born Children.*—M. Lasserre has shown that the fœtus

* Med. Gaz. Nov. 14, 1845. † Gaz. Méd. Janvier, 1846. ‡ Annales d'Hygiène, Juillet, 1845, p. 138.

and new-born child are subject to apoplexy, differing in none of its characters from the apoplexy of the adult. This fact might be brought to bear in cases of alleged infanticide, and is therefore worth recording. One case is given of meningeal apoplexy; a second of effusion into the ventricles; a third into the posterior part of the left hemisphere.*

23. *Legitimacy. Period of Gestation in Cows.*—Mr. C. N. Bement, of Albany, has recorded the period of gestation in 62 cows. The longest period was 336 days, the shortest 213 days; difference 123 days; average of males 288 days, average of females 282 days. The extremes are wider apart than in the more numerous observations of Earl Spencer. In his lordship's observations, 220 days was the earliest period at which a live calf was produced, and 242 the earliest at which a calf was reared. The longest duration in his observations was 313 days, and the average 284 or 285 days. Mr. Bement's observations give 336 as the maximum, being no less than 76 days beyond the period (260 days) at which Earl Spencer considers a calf decidedly premature. The average results of the two series of observations agree more closely, and both series prove that the period of gestation, in the cow, formerly supposed to be fixed, or subject to little variation, is very different in different cases. The application of these facts to the human subject is very obvious.†

24. *Protracted Gestation in the Human Subject.*—The question of protracted gestation was mooted in the case of Jeremiah Wilson Porter, indicted for fornication and bastardy January Term 1844, for Cambria county, Pennsylvania. According to the evidence of the mother, the child was born the 7th of August, 1843, and was the fruit of cohabitation with the defendant on the night of the 24th September. Dr. Rodrigue gave his evidence in favour of protracted gestation, and stated that he had attended a case in which the period was extended to upwards of ten months, and that he had frequently met with cases protracted beyond the ninth month. The court charged the jury strongly in favour of the medical testimony, and the jury, after retiring for a short time, brought in a verdict of "guilty" against the defendant; thus evidencing their belief, that the period of utero-gestation might be extended to 317 days. It is added, that among the jury were two married men who stated that their wives always went beyond the usual term of nine months, and on one occasion one went beyond ten months. Dr. Rodrigue adds the particulars of a case, in which, reckoning from the suppression of the menstrual period, the woman went 320 days. In the case now reported the decision turned entirely upon the alleged possibility of protracted gestation, and the absence of any evidence impeaching the conduct or character of the female. As a female who has once yielded to solicitation, though under the promise of marriage, cannot be supposed to be quite proof against renewed attacks upon her chastity, such cases have little medico-legal value beyond that which attaches to all decisions in a court of law.‡

2a. *Duration of Pregnancy in the Human Subject.*—Some practical observations on this point will be found in one of Dr. Rigby's lectures in the Medical Times.§ After stating that 280 days is the period which, by common consent, has been acknowledged to be the duration of pregnancy in the human female, Dr. Rigby expresses his belief that an average of well observed facts would make the period fall short of this number of days. Thus in three cases, which he happened to know of, where sexual intercourse took place only once, labour came on in

* Gaz. Medico-Chirurg. Fevrier, 1846, from the Journal de Médecine de Toulouse. † Amer. Journal of the Med. Sciences, Oct. 1845, p. 520, from an American Journal the 'Cultivator.' ‡ Contributions to Legal Med. By Aristide Rodrigue, M.D. Amer. Jour. of the Med. Sciences, Oct. 1845, p. 338. § March 14, 1846, p. 471.

260, 264, and 276 days after that event. Though a believer in a variable period, Dr. Rigby is evidentiy sceptical as to protracted gestation, or over-term pregnancy.

## § IV.—*Unsoundness of Mind.*

26. *Impulsive Insanity.*—In illustration of this subject, Mr. Edward Daniell of Newport Pagnell,* has contributed one or two interesting cases. The following is an abstraet of one of them. M. H., a farmer, a man of an irritable temperament, of a sallow and muddy complexion, a free liver, and at one period of his life intemperate, had been subject to frequent funetional disturbance of the liver. He had been raised by marriage from a state of laborious indigence to eomparative wealth; grew indolent under his ehange of fortune, and became addicted to low indulgence. While under treatment he manifested great irritability, his temper was soured by the most trifling cireumstanees, and his mind was disturbed by gloomy and despairing views of every event. Still he could converse, and even be pleasant amongst friends and neighbours; he gave no token whatever of wildness or ineohereney; his answers to questions were always natural, and no man eould gather from his general demeanour that the slightest irregularity existed in his mind. "One day I ealled upon him and found him in a state of great agitation; eountenanee flushed, eyes unusually bright and shining, pulse rapid, breathing hurried and disturbed, as though he was just recovering from some violent mental eommotion. I thought some trifling domestic occurrence had exeited a paroxysm of anger, and that the wild eddies of ungovernable rage were just subsiding as I entered,—indeed, I took it for granted that sueh was the ease, and began to point out to him the dangerous tendeney of sueh paroxysms, but he assured me I was mistaken, for nothing had oeeurred to disturb his equanimity, at least, as far as his family or business was eoneerned; 'for all that' said he 'I have undergone a great trial—a trial wbieh fills me with horror when I refleet upon it.' The following is his own aceount:—'I was lying on the sofa, and my wife and ehildren were sitting by the fire; I had been talking to them very eomfortably, when suddenly my eye eaught the poker,—a desire eame upon me, whieh I could not eontrol; it was a desire to shed blood. I combated with it as long as I could; I shut my eyes, and tried to think of something else, but it was of no use; the more I tried the worse I beeamc, until at last I eould bear it no longer, and with a voiee of thunder, I ordered them all out of the room. Oh! had they resisted—had they opposed me, I should have murdered them every one. I must have done it; no tongue ean tell how I thirsted to do it; Heaven bless them, and for what reason? Great God! how grateful I feel that I am free from that erime.' On another occasion, he met his youngest ehild, a sweet girl about six years of age, on the landing of the stairease, where was a sash window looking into the yard, being at an altitude of fifteen or sixteen feet from the ground. An impulse eame upon him at this moment; he actually seized the ehild by the arm, and had his hand upon the frame of the window, when his better feelings mastered the desire, he rushed into his bed-room, and lay all day in a state of horror and distraction." Mr. Daniell adds that though a surly ill-tempered man, he was doatingly fond of his ehildren.

Some additional cases of spectral illusions, oeeurring under the influence of spirituous liquors and opium, are recorded by Mr. Daniell, and will repay perusal.

* On Impulsive Insanity. Prov. Med. and Surg. Journal, Nov. 12 and 19, 1845.

## § V.—*Real and Apparent Death.*

27. The following extraordinary case is too important as a caution not to be recorded in this place:—In October, 1830, a servant girl, who had retired to bed in apparently perfect health, was found the following morning, as it was supposed, dead. A surgeon who was sent for pronounced her to be certainly dead, and stated that she had probably been so for some hours. A coroner's inquest was summoned for four o'clock of the same day to inquire into the cause of death, and directions were given that a post-mortem inspection of the body should be made in the meantime. The reporter of the case was requested to give his assistance. Accompanied by the surgeon who had been consulted, he went to the house about two o'clock for the purpose of making the inspection. The deceased was found lying on the bed in an easy posture, on her left side, her body forming somewhat of a semicircle. The countenance was pallid, but so perfectly placid and composed as to give her the appearance of being in a deep sleep. The heat of the body, although she must have been dead *eight* or *ten* hours, was not in the least diminished. The room was carefully searched, but nothing in the shape of poison, nor any other means of self-destruction could be discovered. Every article of apparel lay around as it might be supposed to have been left by a person going to bed in perfect health as usual. The heat of the body not diminishing, a vein was opened, and various stimuli applied, but without producing any sign of resuscitation. The respiratory and circulatory processes had ceased; no artery could be felt pulsating. Two hours had now elapsed since their arrival, and the parties still hesitated to perform the inspection, when a message was sent to them stating that the jury were waiting for their evidence. The inspection was then commenced, but on moving the body for the purpose, the warmth and pliancy of the limbs were such as to give the examiners the idea that they were inspecting a living subject. The internal cavities were so warm that a very copious stream issued from them when they were laid open. All the viscera were healthy, there were no signs of disease; nothing appeared to account for death, and from what they saw the inspectors regretted that they had not postponed the examination until the signs of death had been completely manifested. For obvious reasons the name of the place where this extraordinary case occurred, and the name of the reporter were suppressed. He had evidently communicated the details in a fit of remorse for his precipitancy.*

The following quotation from the 'Constitutionnel' will form a proper sequent to this case:—The cases of premature interment prevented by fortuitous circumstances amount in France since the year 1833 to ninety-four. Of those, thirty-five persons awoke of themselves from their lethargy at the moment the funeral ceremony was about to commence; thirteen recovered in consequence of the affectionate care of their families; seven in consequence of the fall of the coffins in which they were inclosed; nine owed their recovery to wounds inflicted by the needle in sewing their winding-sheet; five to the sensation of suffocation they experienced in their coffin; nineteen to their interment having been delayed by fortuitous circumstances; and six to their interment having been delayed in consequence of doubts having been entertained of their death.†

* Med. Gaz. Jan. 23, 1846. Mr. A. S. Taylor's Lectures on Medical Jurisprudence.
† Medical Times, Jan. 24, 1846.

## § VI.—*Death by Lightning.*

28. M. Régnier, a physician at Coulommiers, addressed to the Academy of Sciences, August, 1845, an account of a case of sudden death due to electricity, unaccompanied by thunder. A young girl was leaving the field at the moment that a large black cloud came up from the west. She fell down suddenly, and was taken up dead. On the examination of the body no morbid appearance was discovered, but the hairs of the axilla were burnt. Her cap, thrown to a distance, was pierced by a hole. M. Régnier attributed the death to terrestrial electricity, the girl having served as a conductor of the fluid from the earth to the cloud. M. Arago stated that there existed two or three analogous facts in support of M. Régnier's opinion.*

## § VII.—*Death by Hanging.*

29. Mr. Noyce has reported a case of hanging, in which respiration having ceased, the heart's action however continuing, though feebly, cold affusion was employed with success. The first affusion caused a gurgling in the throat; the operation was therefore repeated, and was immediately followed by slight inspiration. The affusion was frequently repeated, and was followed each time by an inspiration, each more perfect than the last, until the lungs were fully inflated; respiration then continued regularly, accompanied by frequent yawning and sighing. Consciousness was then restored by venesection to the extent of sixteen ounces, and the patient did well.

The patient had suspended himself by means of a pair of braces, and from what Mr. Noyce could collect, he had been hanging two or three minutes, and had been cut down four or five minutes before his arrival. The features were pale, but the eyes were injected.†

## § VIII.—*Asphyxia.*

30. Dr. John Snow has instituted a series of experiments, with a view of distinguishing the effect of a diminished quantity of oxygen and an excess of carbonic acid in asphyxiating media. The results of his experiments were first submitted to the Westminster Medical Society, in March, 1839, but the experiments themselves, with the author's observations upon them, are now published more in detail.‡ Dr. Snow first points out the different constitution of the air which results from a mere admixture of carbonic acid formed *ab extra* with the same quantity generated at the expense of the oxygen of the air itself; and states, by way of illustration, that a small wax taper is instantly extinguished in air which has been contaminated by respiration till it contains 4 per cent. of carbonic acid, whereas 20 parts of carbonic acid, or 25 parts nitrogen, require to be added to 100 parts of common air before it will extinguish the flame. He then proceeds to submit to experiment the effects of diminished oxygen; of carbonic acid substituted for a portion of the nitrogen of the air, the proportion of the oxygen being preserved; and of a diminished supply of oxygen plus carbonic acid. The subjects of the experiments were white mice and small birds.

* Revue Médicale, Sept. 1845. † Med. Gaz. Jan. 1846, p. 75. ‡ On the Pathological Effects of Atmospheres vitiated by Carbonic Acid Gas, and by a diminution of the due proportion of Oxygen. By John Snow, M.D. London. Edinb. Med. and Surg. Jour. Jan. 1, 1846, p. 49.

In the first series of experiments a proportion of the oxygen of the air was removed by introducing nitrous oxide gas into a vessel containing 2000 cubic inches of atmospheric air, and inverted over lime water. The following are the results of these experiments expressed in the shortest terms :

1st *Exp.* 18½ parts oxygen, 81½ nitrogen. White mouse, no effect in five hours : sparrow, dyspnœa in five hours, found dead in twelve hours.

2d *Exp.* 17½ per cent. oxygen, 82½ per cent. nitrogen. White mouse, removed well after ten hours ; sparrow, no effect in first half hour : another sparrow, death in six hours.

3d *Exp.* 15 per cent. oxygen, 85 per cent. nitrogen. White mouse, insensible in five and three quarter hours, with slow and deep respiration, but recovered on removal ; sparrow, convulsions in thirty-five minutes ; removed, and died the following night.

4th *Exp.* 16 per cent. oxygen, 84 per cent. nitrogen. Green linnet, death in ten minutes.

5th *Exp.* 10½ per cent. oxygen, 89½ per cent. nitrogen. White mouse, immediate distress, with quick and deep respiration ; in five minutes exhausted, and evidently dying, but soon recovered on removal.

In the second series of experiments, the due amount of oxygen was preserved, a portion of the nitrogen being replaced by carbonic acid introduced from without.

1st *Exp.* Oxygen 21, carbonic acid 4, nitrogen 75. Linnet, dull and listless, and respiration rather deeper than natural during eleven hours ; recovered on admission of fresh air.

2d *Exp.* Oxygen 21, carbonic acid 12, nitrogen 67. Small bird, respiration quick, deep, and difficult, in less than an hour ; very uneasy at the end of two hours and a half. In the morning dead.

3d *Exp.* 21 oxygen, 20 carbonic acid, 59 nitrogen. Two birds, greatly disturbed almost immediately, taken out at the end of a few minutes, and died soon after. White mouse, respiration hurried, debility ; death in an hour and a half.

In the third series of experiments the amount of oxygen was diminished by the introduction of carbonic acid, or by the formation of the gas within the receiver by combustion.

1st *Exp.* Oxygen 19¾, carbonic acid 6, nitrogen 74¼. Two brown linnets, immediate difficulty of breathing, which continued for four hours and a half, when one died, but the other was removed and recovered.

2d *Exp.* Oxygen 19, carbonic acid 10, nitrogen 71. Mouse, immediately distressed, and breathed deeply, and on being removed, at the end of three hours, in a very feeble state, immediatcly recovered.

3d *Exp.* Oxygen 19, carbonic acid 1·5, nitrogen 79·5. Linnet, not much affected after twelve hours, and continued well after removal.

4th *Exp.* Oxygen 16¾, carbonic acid 3, nitrogen 80¼,—the carbonic acid being generated by a burning candle. Linnet, died in two hours and a half.

5th *Exp.* Oxygen 16½, carbonic acid 3, nitrogen 10½. White mouse, uneasy from the first, tried to escape, breathed laboriously, and after four hours was found lying on its side exhausted and scarcely breathing ; recovered after a while.

The foregoing experiments prove the importance which ought to be attached to the removal of oxygen that accompanies the formation of carbonic acid in all cases in which the carbonic acid is generated at the expense of the air, and the futility of all plans for protecting life by the mere absorption

of the carbonic acid, without, at the same time, restoring the oxygen of which the air has been deprived. This observation applies to the proposal of Professor Graham to absorb the carbonic acid remaining after the explosion of fire-damp in coal mines, by means of a cushion filled with a mixture of slacked lime and pounded sulphate of soda, placed before the mouth. The removal of the carbonic acid, though *pro tanto* an advantage, would not of itself render the air safe to breathe. The oxygen must at the same time be replaced. With regard to the proportion of carbonic acid which may exist in the air without danger to human life, Dr. Snow is of opinion that 5 or 6 per cent. of carbonic acid cannot exist in the air without danger to life, and that less than half this amount will soon be fatal, when it is formed at the expense of the oxygen of the air, as it is in most cases of accident and suicide. This subject is by no means exhausted by the experiments of Dr. Snow.

## § IX.—*Wounds.*

31. *Detection of minute Spots of Blood on Cloth.*—M. Brame's method of detecting spots of blood, and distinguishing them from other stains, consists rather in his mode of manipulation than in the proposal of any new test. He directs that in examining minute spots we should first carefully remove the stained portion of cloth, then place it in contact with a few drops of distilled water in a watch glass. At the end of about a quarter of an hour the cloth will have imbibed the water, and communicated to it a rosy tint. The process may be hastened by pressing the cloth with the point of a pipette. Minute portions of the fluid are then to be absorbed by means of capillary pipettes; one portion may be submitted to examination by transmitted and reflected light; a second may be placed under the microscope and examined for ammoniacal salts; and a third, dropped on plates of glass, may be submitted to the tests of heat, potash, hydrochloric acid, chlorine, &c.*

## § X.—*Medico-Legal Trials and Inquests.*

32. *Rape.*—Trial of Hugh Jackson at the Glasgow Winter Circuit, for a rape committed on the person of Janet Hunter, a girl about 14 years of age. The offence was clearly proved, and the appearances on the body of the child and in the parts of generation fully corroborated her own statements. There were several bruises and scratches on the back, shoulders, neck, and arms; the external organs of generation were surrounded with coagulated blood; the external labia were swollen, a portion of the right side of the vagina lacerated, and the other parts had sustained much injury.†

33. *Poisoning with Arsenic.*—The trial of John Graham at the Cumberland Assizes, August, 1845, for the murder of his wife and father, presents some points of interest. The father was seized, in common with his wife and several other persons, with symptoms of irritant poisoning, after partaking of some yeasted cakes. The others recovered, but the father died. The cake was found to contain arsenic, but the flour and butter used in making it were free from it. The contents of the stomach and the mucus scraped from its surface contained no arsenic, but when the stomach was cut into pieces and boiled with muriatic acid (the decoction was subsequently boiled with animal charcoal, contrary to the caution given by M. Chevallier, Abstract, vol. ii, p. 417) arsenic was obtained. The liver and the blood were also tested, and

* Travaux de la Société Médicale du Département d'Indre-et-Loire, and Revue Méd Octobre, 1845. † Cormack's Monthly Jour. of Med. Science, Nov. 1845, p. 861.

found to contain the poison. The test employed was Reinsch's test, corroborated by the liquid tests. The crime was brought home to the prisoner by the discovery of arsenic in the dust of his waistcoat pocket. A suspicion having been raised that the wife of the prisoner, who had died six months before, had fallen a victim to poison administered by him, the body was disinterred, and a post-mortem examination and analysis performed by order of the coroner. In consequence of the evidence given by the medical examiners, the husband was committed to take his trial for the wilful murder of his wife.*

34. *Death by Strangulation.*—Commonwealth v. Bernard Flanagan and Patrick Flanagan, in the court of Oyer and Terminer, Cambria county, Pennsylvania, October term, 1842. This case scarcely admits of analysis. The prisoners were convicted on the strength of the medical testimony, backed by slight circumstantial evidence.†

35. *Accidental Poisoning by Strychnia.*—This case occurred in the person of an out-patient of the Manchester and Salford Lying-in-Hospital, and suggests some useful precautions. An abstract of the proceedings at the inquest will be found in the 'Dublin Medical Press,' January 7, 1846, and some judicious editorial remarks in the 'Provincial Medical and Surgical Journal,' Dec. 24, 1845.

36. *Death in Labour.*—An inquest was held at Burton, near Christchurch, Hants, on the body of Anne Hussey, who died soon after her delivery. The particulars are detailed in a communication to the 'Lancet,'‡ signed by four medical men resident in the town of Christchurch. The deceased had engaged the services of a druggist who was in the habit of attending midwifery cases, who, on his arrival, finding her in convulsions, contented himself with sponging her face and mouth. The jury returned a verdict, "That Anne Hussey died of difficult labour, and that Henry Jenkins (the druggist) be censured for neglect of duty." It would have been more to the purpose had the jury censured the druggist for undertaking that which he was not prepared to perform. It appears from his own evidence that he had had no medical education, and was not licensed to practise midwifery, but that he nevertheless considered himself "competent to undertake all cases." It is much to be regretted that such dangerous presumption should not meet with an appropriate punishment.

37. "*New Contagious Disease.*"—Under this title will be found a minute and carefully written account of the circumstances connected with the occurrence of an obscure disease in the persons of William and Henry Lambert, who died in the Middlesex Hospital, and on whose bodies an inquest was held on the 17th and 24th of November, 1845, by Mr. Wakley. The symptoms in these cases bore some resemblance to glanders, and to the effect of decayed and putrid animal food, and they were attributed to the operation of an aerial animal poison, or to the use of spoiled food. The case is too long for analysis, but the evidence, so carefully collected by Mr. Mills, renders any other supposition highly improbable but that which attributes the fatal result to a modified form of scarlet fever.§

38. *Life Assurance.*—Case of Ashby and others, executrix, &c. v. Bates. This was an action against the Argus Insurance Company upon a policy for the sum of £500 upon the life of Richard Bates, farmer at Budbrook, lately deceased. The first plea alleged that it was untrue that he had not a rupture,

* Cormack's Monthly Jour. of Med. Science, Nov. 1845, p. 863. † Contributions to Legal Medicine. By Aristide Rodrigue, M.D. Amer. Jour. of the Med. Sciences, Oct. 1845, p. 339. ‡ Dec. 27, 1845. § Lancet, Dec. 6, 1845.

or any disease tending to the shortening of life; the second plea fraud. The jury returned a verdict for the defendant upon the first issue, viz. that the deceased, at the time of effecting the insurance, had hernia; and for the plaintiff upon the issue of fraud.*

39. *Survivorship.*—The interesting American case of Pell v. Ball will be found given at length, with comments, in the 'Medical Gazette,' Feb. 1846, p. 250. It is too long to admit of being inserted in this place.

40. *Homicidal Mania.*—The reader is referred for some interesting and striking remarks on this subject to a leading article suggested by the recent cases of Wix and Graham, in the 'Medical Times,' May 16, 1846, p. 133.

41. *Poisonous Fish.*—An elaborate essay on this subject will be found in Schmidt's Jahrbücher der in und ausländischen gesammten Medicin, No. 9, Heft iii, p. 278. It is abstracted from the Med. Zeit. Russl. No. 5, 6, and 7, 1845, and is entitled Ueber das Fischgift, von D. E. Sangbusch.

* For full particulars, see Medical Times, March 14, 1846, p. 481.

# VII.

# REPORT ON THE PROGRESS OF MATERIA MEDICA AND PHARMACY.

BY GEORGE EDWARD DAY, M.A. L.M. CANTAB.

Licentiate of the Royal College of Physicians, Lecturer on Materia Medica at the Middlesex Hospital Medical School, and Physician to the Western General Dispensary.

## § I.—*General Pharmacy.*

1. *On the Preparation of Tinctures.*—A memoir on this subject by M. Personné* gained the prize offered by the Société de Pharmacie, for the best essay on the means of ascertaining whether the proportion of alcohol at present employed is sufficient to dissolve the whole, or at least the greatest possible amount of the principles contained in drugs, and if not, to determine the best proportion to be used; and further, on the most suitable degree of strength the alcohol should possess to dissolve the active ingredients.

In order to ascertain the requisite amount of alcohol, it was necessary to macerate the substances employed in variable quantities of spirit, and to evaporate the tincture thus formed in order to obtain the weight of the matters in solution. The following process answered best. A weighed quantity of the substance was macerated for a sufficient time in a given quantity of alcohol; the maceration being completed, the whole was placed on a filter, the quantity of filtered tincture accurately weighed, evaporated in the water-bath, and the extract thus obtained exposed to a temperature of 158°-194°, until it ceased to lose weight. The weight of this extract subtracted from the weight of the tincture, yielded the weight of the alcohol contained in that quantity of tincture. A simple proportion then suffices to give the total weight of extract which the whole tincture would have yielded. For example, 15 grammes of cinnamon were macerated with five parts, or 75 grammes of alcohol at 80° (or ·865 spec. grav.) The weight of the tincture which passed through the filter was 27·08 grammes, and that of the extract obtained from this quantity of tincture and completely dried was 0·94 gramme. On subtracting this from 27·08, we obtain 26·14 for the weight of alcohol contained in the quantity of tincture evaporated. The following proportion; 26·14 : 0·94 : : 75 : $x$ gives the total amount of the substance dissolved by the whole of the alcohol : $x = 2{\cdot}69$ grammes of extract. After noticing the precautions that were taken to avoid all possible sources of error in his experiments, he proceeds to describe the manner in which he determined the most suitable strength of the alcohol. This was done by determining the quantity of the active principles, in such cases as cinchona, nux vomica,

* Journal de Pharmacie, vol. viii, pp. 404-429.

jalap, &c., where those principles are definite and well-marked. In the two first cases the alkaloids were thrown down as tannates, and in the case of the jalap the resin was extracted from a given quantity of tincture. But although in the above cases the results can be readily checked, this is not generally the case, the active principles being usually indefinite, and not possessing well-marked chemical properties. How, for instance, in the case of hemlock, belladonna, rhubarb, gentian, &c., can we determine whether alcohol of ·865, or of ·923 spec. grav. forms the more active tincture? In those substances which contain a bitter principle as an active ingredient, as rhubarb, gentian, and wormwood, Personné took two fixed quantities of the tinctures prepared with the alcohol of the two strengths, and ascertained by diluting them which required the greater quantity of water to cause the disappearance of the bitterness.

The degrees of alcohol employed in these experiments were five in number, viz. of specific gravities ·833, ·865, ·889, ·953, and ·922.

From 300 experiments upon 32 different substances, he draws the following conclusions:

1. The degrees of strength prescribed in the French Codex are not always the most favorable for dissolving the greatest quantity of the active principles contained in the substances employed.

2. The proportion of four parts of alcohol to one of the substance is in scarcely any case sufficient to dissolve all the soluble parts of the substances.

3. The quantity of alcohol sufficient to exhaust a substance entirely is in general five parts of alcohol to one of substance. There are a very few cases in which this proportion is not quite sufficient, but the error is so slight that it need not interfere with the general rule.

4. The quantity of alcohol is always sufficient to exhaust a substance when this vehicle is in sufficient quantity to moisten it thoroughly, and when the matters are of an herbaceous nature, as, for instance, leaves.

5. The strengths most suitable for the preparation of tinctures are ·865, ·923, and ·942 spec. grav.

These degrees are arranged below with the substances for which they are suited.

In conclusion, he mentions a singular fact which occurred in nearly every experiment. Almost every time that the proportion of alcohol was greater than was required to exhaust the substances, he always obtained less extract than when the proportion was just sufficient. From a table of the different degrees of alcohol to be employed for such substance, with which the memoir concludes, it appears that the tinctures of yellow bark, jalap, cinnamon, pyrethrum, crocus, castor, and myrrh, are best prepared by treating one part of the substance with five of alcohol of ·865; that the tinctures of rhubarb, gray bark, ipecacuanha, nux vomica, gentian, red bark, digitalis, senna, squills, black helleborc, contrajerva, polygala, and ginger,* require five parts of alcohol of ·923; and those of valerian root, white hellebore root, colchicum (cormus), azarum (leaves), aconite, hemlock, belladonna, hyoscyamus, and stramonium, require a similar proportion of alcohol of ·942. M. Personné considers that the best mode of preparing these tinctures is by cold maceration.

2. *On the Preparation of Infusions.*—In a paper communicated to the Pharmaceutical Society by Mr. Greenish,† an attempt is made to prove the superiority of boiling water in this process. Reference is especially made to the inf. calumbæ. In the subsequent discussion, Mr. Blanchard observed

* Cantharides require eight parts of alcohol of this strength, according to the Codex.

† Pharmaceutical Journal and Transactions, vol. v, p. 307.

that he had found chlorate of potash in small quantity to produce the same preservative influence as has been ascribed by Mr. Squire to nitrate of potash.

3. *On the Preparation of Aqueous Extracts.*—M. Davallon* has suggested that, in the preparation of extracts, the inconveniences arising from the employment of a high temperature have been much exaggerated, and that the injury they most usually suffer is not produced by the heat, but by contact with the atmospheric air. He therefore proposes to evaporate them over an open fire; to prepare them he advises the liquid to be boiled till it reaches a certain density (about 1·161), the vessel being fed by means of a glass syphon, one leg of which is plunged in a reservoir containing the liquid to be evaporated, while the other leg is drawn out to a fine point. By this means the liquid always remains at the same level; the tension of the steam is sufficient to prevent the contact of the air, and in every case the motion produced by the ebullition is sufficient to cause the surface to be constantly renewed. M. Davallon also advises that before their evaporation to the condition of extracts they should, after being partially concentrated, be cooled and filtered through moistened unsized paper. In a report on this paper, by MM. Veron and Gobley, they state that the filtration of the liquids may be adopted, because that is the only means by which the insoluble matters can be completely separated; but they do not think the evaporation ought to be effected over an open fire, because they always found that, even following M. Davallon's process, the extractive matter was more changed than by operating with the water-bath. Hence, on the whole, their report may be regarded as an unfavorable one.

4. *On the Effects of the Sun's Rays on certain Drugs and Preparations.*—In a paper on this subject, by Mr. Robert Hunt† who deservedly possesses the reputation of being one of the most accurate observers of the day, the effect of light on numerous pharmaceutical preparations is very forcibly shown.

It has long been noticed that a peculiar change is frequently produced by the continued exposure of medicinal preparations to the influence of daylight, a change not merely in the colour of the article, but in its medicinal properties. To adduce a few instances, ginger (pulv. zingiberis Jam.) loses its fine yellow colour, and becomes white, with loss of its pungency. The powders of the leaves of hemlock (conium), foxglove (digitalis purpur.), henbane (hyoscyamus), &c., become a dirty yellow, aud when this change has taken place, it is well known that no dependence can be placed upon these active drugs producing their peculiar influences on the system. The powders of the roots of jalap and ipecacuanha become pale, and, particularly the former, are rendered comparatively inert. The tinctures of cascarilla, catechu, kino, and frequently cinchona, deposit a considerable portion of the vegetable matter held in solution by the spirit on the side of the bottle exposed to the most light; the same result takes place with some others. In chemical preparations, many very remarkable changes take place, which need scarcely be particularized. The changes in oxide of silver, in oxide of mercury, and in nitric acid have frequently been described. The effect of even diffused light on hydrocyanic acid is familiar to every druggist, and there can be but few who have not observed alterations in the character of the peroxide of mercury (red precipitate) and the chloride of mercury (calomel) by the action of the sun's rays. The bleaching of the fixed oils and of wax need scarcely be mentioned, but the influence of light upon the resins, with the exception of guaiacum, was never pointed out until the publication of M. Niepce's photographic researches.

The following is the mode adopted by Mr. Hunt in this examination, and the

* Jour. de Pharmacie et de Chimie, vol. ix, p. 19. † Pharmac. Jour. and Trans. vol. v, p. 171.

various conditions under which the experiments were made. Having selected the bright green powder of the leaves of the medicinal plants, carefully dried in the dark, and powdered by himself, it was placed in dry and warm glass tubes, and these were then hermetically sealed. Some of these tubes were placed aside in a dark cupboard to serve for comparison with those exposed to light; other tubes of powder were now exposed, day after day, to the action of the rays of a prismatic spectrum, which was maintained in a fixed position, by means of a good heliostat. The tubes were so placed across the spectrum, that each tube was kept under the influence of a particular ray. Although he frequently placed seven tubes in the seven rays of the spectrum he generally used only three, for the following reasons. Sir David Brewster considers that there are but three primitive colours in the solar beam, red, yellow, and blue, and that all the other colours are but compounds of those rays with each other. Mr. Hunt's researches have proved to him that the three great phenomena of the solar radiations—LIGHT, HEAT, and CHEMICAL ACTION, have their points of maximum power in three distinct parts of the spectrum; the red rays giving the largest amount of calorific power, the maximum intensity of light residing in the yellow rays, and the chemical power being greatest in the blue rays. It will, therefore, now be seen that by using three tubes only, the vegetable powder under examination was exposed to the influence of the heat of the sun's rays—to their light—and to their chemical, or, as he has proposed to term it, —ACTINIC power. By this arrangement he soon ascertained that the decolorization of green vegetable powders was not due to the influenee of LIGHT, as the powders exposed to the full intensity of yellow light, in which we have the maximum of luminous influence, underwent no change—the alteration of colour was in nearly all cases, but not in all, first set up under the influence of the red rays. No great difference could, however, be detected between the action of the red and the blue rays. Hence we learn, that the change in question is due to the action of the heating and chemical principles of the sun's rays. By using two spectra, and so arranging them that the blue ray of the one fell upon the space occupied by the red ray of the other, we are enabled to examine the combined action of these rays; and he always found the result to be a very rapid bleaching of all green vegetable powders. The bleaching of the brown and yellow powders, jalap, bark, and ginger, is due almost entirely to the blue or chemical rays. The chemical examinations of the bleached powders appear to show that an absorption of oxygen takes place under the action of the chemical rays; but that the heat-rays exert their power principally, if not entirely, in removing an atom of combined water.

It will not be difficult to understand how very important the changes effected in the constitution of the organic body must be, when we consider the very great differences in medicinal effects produced in chemical compounds, by the addition or subtraction of an atom of oxygen or of water.

These remarks and results apply with equal force to the resins and the fixed oils. The bleaching of the fixed oils appears to depend almost exclusively on the action of the blue and indigo rays of the spectrum, and although the thermic rays produce a little effect upon the resins, it is in no respect to be compared to the action of the actinic rays, which appear to liberate a portion of oxygen, by which solarized is rendered much more soluble than unsolarized resin. The conversion of linseed-oil into a substance resembling caoutchouc under the influence of the air, is very materially modified by the action of the sun's rays, the blue rays accelerating the absorption of oxygen, and the yellow and red rays retarding it.

All the changes which have yet been examined upon the salts of the metallic oxides, appear to be due entirely to the influence of the blue and violet rays,

and the alterations in colour and character are dependent upon the liberation of one atom of the gaseous element from the compound.

The decomposition of hydrocyanic acid under the influence of the solar radiations is also due to the chemically active rays, and Mr. Hunt found that the change is effected more speedily in the blue and indigo rays than in any others. We have in this case the formation of ammonia, and the precipitation of a brown powder which appears to be a compound of nitrogen and carbon.

Such is the general outline of his results. It is a very common practice for druggists and manufacturers to put those pharmaceutical preparations which are liable to change by light into dark purple coloured bottles, or to cover white glass bottles with blue paper, with the idea that the quantity of *light* admitted is then so small, that no change can take place. We learn from these investigations, and the knowledge is of great practical importance, that no plan more efficient for producing rapid decomposition could be adopted than the use of blue glass bottles. Light positively acts as an interfering agent; this light is obstructed by the dark blue glass, and the pure, or nearly pure chemical rays are permitted to act on the preparations with all their energy. If, instead of using those kinds of bottles, others prepared of a neat form from the ordinary dark green bottle glass were adopted, there would be but little fear of any decomposition from the solar radiations. Not only does this kind of green glass obstruct the rays of light to a great extent, but nearly all the calorific rays are shut off, and the actinic or chemical rays are reduced in quantity and force in a very remarkable manner.

For bleaching oils there can be no question but purple bottles would be by far preferable to any other colour, for the reasons above explained.

5. *On the Means of Covering Pills with Gelatin.*—The process recommended by M. Garot, is as follows. Fix the pills on long, fine pins; plunge them into thick purified glue, placed in a water-bath; remove them with a rotatory motion, and stick the heads of the pins in paste spread on a slab, so that the pills on the pins' heads may remain elevated in the air; as soon as fifty are thus treated rotate them individually in the heat of a taper, to harden the external pellicle; pull out the point of the pin and the process is complete.

6. *Chemical Analyses of Medicines.*—Cascarilla, digitaline, bebeerine, myrrh, sassafras, and manna.

*Cascarilla.*—A very elaborate memoir on the chemistry of cascarilla has been recently published by M. Duval, in which, after giving a full and very interesting medical and chemical history of it, he gives the result of his own analysis. The most interesting ingredient was the bitter crystalline matter (cascarilline), which he obtained in the following manner. Cascarilla, possessing a decided bitter flavour, is roughly powdered, introduced into a displacement apparatus, and treated with water. The infusion thus formed is treated with a solution of acetate of lead, filtered, and the excess of lead removed by sulphuretted hydrogen. It is again to be filtered and evaporated to about two thirds; a little animal charcoal is then added, and filtration again performed. The evaporation is to be continued at as low a temperature as possible. Just before the liquid becomes syrupy it is to be allowed to cool, and the solid matter removed with care. Sometimes this substance does not present any crystalline character; it then has a resinous appearance, and the greater part of it is attached to the sides of the evaporating vessel. It becomes hard on cooling. After the removal of colouring and fatty matter by cold alcohol of ·866, it must be dissolved in boiling alcohol of ·832, to which a little animal charcoal must be added. After filtration it is yielded by spontaneous evaporation in the form of white prismatic needles, or occasionally as hexagonal plates. Cascarilline is very little soluble in water, but yet communicates to

it a powerful bitterness. The solution is neutral; is not precipitated by neutral or basic acetate of lead, nor by tannin or alkalies. It is soluble in spirit and ether. It dissolves in concentrated sulphuric acid, to which it communicates a deep red, almost purple colour. The addition of a little water occasions a precipitate, and the liquid assumes a grass-green colour. It contains no nitrogen, and from its general chemical characters must be classed with the non-nitrogenous neutral substances, such as salicin. M. Duval concludes by expressing his expectation that medical science will be benefited by the use of this isolated cascarilline.

*Digitaline.*—The active principle of digitalis is best prepared, according to M. O. Henry, in the following manner:—Take any quantity of dry digitalis, reduce it to coarse powder, and make it into a paste with spirit of ·860; separate the tincture by strong pressure, and repeat the operation.

The alcoholic solution is to be distilled, and the residue treated with water acidulated with acetic acid; filter or decant, and add to the clear liquor a concentrated infusion of nutgalls as long as precipitate continues to form. The deposit will form a flocculent precipitate, adhering to the bottom of the vessel like resin; it must be carefully collected and well triturated with an equal weight of very finely-powdered litharge, adding at the same time a little alcohol. The tannate of lead thus formed must be treated with spirit of ·840 at a gentle heat (from 86 to 104°). The filtered fluid must be distilled and the residue shaken two or three times with warm sulphuric ether. The insoluble part is digitaline, which is excessively bitter, scarcely soluble in water, but freely in spirit. When heated it melts, and may be drawn into long threads; cooled, it is easily reduced to a yellowish white powder, which must be kept from air and light. If a spirituous solution be spread on plates of glass, &c., it will, on drying, separate into beautiful white scales.

*Bebeerine.*—The bark of the bebeeru, or green heart, has been submitted to chemical analysis by Dr. D. Maclagan, and in Vol. xv, Part 3, of the 'Transactions of the Royal Society af Edinburgh,' he has given an account of the separation of one of its alkaloids, *bebeerine*, and the preparation and medical uses of its sulphate. In conjunction with Mr. Tilley, he has since made three ultimate analyses of it, which lead to the formula $C_{35}\ H_{40}\ N_2\ O_6$. It is worthy of observation that the constitution of morphia (according to the analyses of Liebig and Regnault) agrees perfectly with the above formula for bebeerine, being the first instance of isomerism occurring in substances belonging to the class of organic bases. For evidence of the power of bebeerine in periodic diseases we must refer the reader to a memoir, by Dr. D. Maclagan, in the 'Edinburgh Medical and Surgical Journal,' for April, 1845.

*Myrrh** has been submitted to analysis by Ruickoldt. The variety examined was m. nova. On fracture it had a waxy lustre, with occasional white striæ and amygdaloid indentations of the same colour. The specific gravity varied from 1·120 to 1·180. On the application of heat it did not fuse, but swelled, emitting white fumes, and carbonizing if the heat was continued. In 100 parts there were—

| | |
|---|---|
| Volatile oil (myrrhol) . . . | 2·183 |
| Resin (myrrhin) . . . | 44·760 |
| Gum (arabin) . . . | 40·818 |
| Water . . . . | 1·475 |
| Impurities . . . . | 3·862 |
| Carbonates of lime and magnesia . . | 3·650 |

* Pharmaceutisches Central Blatt. No. 20.

The subject is elaborately worked out, and the memoir contains ultimate analyses of myrrhol, myrrhin, and myrrhinic acid (an acid resin formed on melting myrrhin.)

*Sassafras Root.*—Reinsch* has examined the bark of the root which contains a much larger proportion of the active constituents than the wood. In addition to the ordinary ingredients of roots, he obtained 9·2% of a peculiar principle, to which he gives the name sassafrid. He states that it resembles tannin in many respects. The wood freed from the bark yielded similar results, but contained scarcely half the quantity of constituents which the bark yielded, and the volatile oil which in the bark of the root amounted to less than 1%, was here even less. This fact is especially worthy of notice, because the bark is generally removed from the wood, as we obtain it from the druggist.

*Manna.*—Leuchtweiss has recently examined the varieties of manna most frequently met with in commerce, viz., 1, M. canellata—flaked manna; 2, M. canellata, in lumps; 3, M. calabrina—capary manna. The mannite was determined by destroying the sugar by fermentation, and then taking it up from the dried residue by means of alcohol. The sugar he regards as grape sugar. The following are the results of his analyses:

| | The canellata in flakes. | Do. in lump. | M. calabrina. |
|---|---|---|---|
| Water | 11·6 | 13·0 | 11·1 |
| Insoluble matter | 0·4 | 0·9 | 3·2 |
| Sugar | 9·1 | 10·3 | 15·0 |
| Mannite | 42·6 | 37·6 | 32·0 |
| Mucilage, resin, &c. | 40·0 | 40·8 | 42·1 |
| Ashes | 1·3 | 1·9 | 1·9 |

In an analysis of the best manna, Buchholz found as much as 60% of mannite.

7. *Impurities of Organic Remedies. Musk-pods.*—Dr. Neligan has proposed the application of the microscope as the best means of distinguishing between true and spurious musk-pods. He states that the hairs which grow on the preputial sac of the musk animal differ very remarkably from those of the false sacs met with in commerce; the hairs on this part of the animal being furnished in the interior with distinct regular coloured cells, whilst in hairs taken from other parts of the animal's body, those cells are obliterated. The editor of the 'Pharmaceutical Journal,' in noticing the subject, observes that the hairs in all the specimens in their museum possess the above cellular structure, although several of the pods are known to be spurious.

*Myrrh.*—Righini† has proposed the following as a test for the purity of myrrh. Let it be finely pulverized and saturated for a quarter of an hour with an equal weight of powdered hydrochlorate of ammonia; add gradually fifteen times its weight of water. If the mixed powder dissolve quickly and entirely the myrrh is pure.

*Guaiacum Wood.*—Schwacke‡ has published the following mode of ascertaining the genuineness of this substance. When a few drops of a solution of corrosive sublimate are poured over shavings of guaiacum wood in a test-tube and slightly warmed over a spirit-lamp, a blueish-green colour is immediately produced with all genuine samples.

* Buchner's Repertorium. † Journal de Chimie Méd. ‡ Archiv der Pharm. vol. xliv, p. 178.

## § II.—*Vegetable Remedies.*

8. *Lactucarium.*—In our last Report we briefly noticed the researches of Aubergier on this subject. Some of his conclusions have been combated by M. Emile Monchon,* who, in an experimental essay, describes the actions of ether, alcohol, cold and boiling distilled water on lactucarium, and adds, that from his researches there seems to be no advantage in making either ethereal or alcoholic preparations, but that all the active matter is taken up by boiling water. He regards it as a remedy of the highest importance, and as the best substitute for opium when that drug is counter-indicated.

9. *Opium.*—Dr. Sutherland† has published some remarks on *hill opium*, a variety grown among the lower ranges of the Himalas, chiefly in reference to the treatment of dysentery. He believes that in this disease, as it occurs in Asia, the concrete juice is preferable to the alkaloid salts, probably, in consequence of its slower progress through the intestinal canal, and from its greater volume having a more extended effect upon large ulcerations and extensively inflamed mucous surfaces.

"The object," he observes, "being to procure for general use a variety of the drug possessing the greatest quantity of valuable alkaloid, and the smallest proportion of deleterious principle, the attention of the profession is solicited to a variety of opium grown by the humble cultivators of the scanty patches of soil (capable of culture) among certain ranges of the Himalas, and which I have found better adapted for general use in the form of cencrete juice, than any other variety known to pharmacologists. This opinion is founded upon its use in hospital and general practice, both in India and Europe, and confirmed by the subjoined analysis, by which it is evident that the proportion of alkaloid principles, in the ratio of their value, is highly in favour of the new variety, known partially to medical men in India under the name of 'hill opium.'

"In reference to the subjoined analysis, it must be taken into account that the portion of hill opium experimented on was not a picked specimen; and as the other varieties compared with it in the table of analyses were specially selected, the circumstance tells certainly in favour of the new drug. There can be no doubt that much of the virtue arises from the deficiency of narcotina exhibited. Analysis may, however, not always completely account for a specific virtue, which I am inclined to attribute to the drug in question, and which may depend upon the aggregate as well as the proportionate value of its component parts. Nor is it impossible that the aromatic quality, alluded to in the analytical account, may exert a beneficial influence, when in apposition with diseased mucous membranes.

"This drug has probably never reached this country before. It was originally brought to my notice by Dr. W. L. M'Gregor, of the Bengal European Light Infantry, from whom I procured a small portion for hospital use, with the view of confirming in native constitutions the result of Dr. M'Gregor's practice in European cases. Dr. M'Gregor found the hill opium peculiarly calculated for reducing inflammatory action in the mucous coat of the bowels, and he employed it in most stages of dysentery in Europeans, with the happiest results.

"A few words concerning the qnalities of hill opium, as applied to practice in Europe. It does not lose any of its efficacy when used in a temperate climate; but to render it active, it must be prescribed in much the same dose as in India, namely, from one to four grains, according to the urgency of the

* Journal de Chimie Méd. † The Northern Jour. of Med. Jan. 1846.

case. I have had no opportunity of employing it in dysenteric affections as they occur in Britain; but I have exhibited it in the irritability preceding, and concomitant with, periodical chronic obstruction of the intestinal canal, where there was reason to believe that contraction of a portion of it existed, and threatened acute inflammation. The almost specific power of the hill opium in this serious case can be confirmed by Dr. James Marr, of Edinburgh, who afterwards used it on several occasions with much confidence. The beneficial effects of the drug might justly be anticipated in every case requiring the employment of morphia.

"There is no reason for supposing that the plant from which the hill opium is obtained differs in the smallest degree from the 'papaver somniferum' of the 'Materia Medica.' The medicinal qualities of the concrete juice obtained from the plant cultivated in the "hills" must therefore be modified solely by circumstances under which it is found. The climate and soil of the hilly districts in which it is grown may certainly influence its properties, as these are known occasionally to affect the powers of several remedies of a vegetable nature; and the peculiarities of culture adopted by the "hill men" may tend to the production of a peculiar property in its chemical composition, so as to affect its medical virtues. The localities where this opium is an object of cultivation are those ranges of the Himala varying from six to eight thousand feet above the level of the sea. The plant is cultivated in little terraces or hanging gardens, watered by rills from the precipices above, and guided in tiny canals, such as are cut for rice-growing. The soil consists of débris or detritus from the overhanging mountains, and the enormous quantity of micaceous schist that assists in the formation of these mountain ranges, may form a soil specifically affecting the product.

"From the analysis of Dr. S. F. Thomson, it would appear that the value of the drug consists in the presence of rather more than the average proportion of morphia, and greatly less than the average quantity of narcotina, which agrees with the medical effects noticed, and is likewise interesting on the grounds that the drug grown in the plains of Bengal, and usually termed East India opium, is asserted by such an undoubted authority as Dr. Christison to abound in narcotina at the expense of morphia.

"*Analysis by Dr. S. F. Thomson.*—I received from my friend, Dr. J. S. Sutherland, a small quantity of a drug, the product of India, and called 'hill opium.' It was of a consistence as hard as bees-wax, of a dark-brown colour, a bitter, somewhat spicy, not disagreeable taste, an aromatic opiate odour, a somewhat shining and homogeneous fracture. Being requested to ascertain the proportions of morphia and narcotina in the specimen, I have subjected it to analysis, which has been repeated, and I can confidently say, that the opium is of fine quality, and in the hands of expert manufacturers of morphia, likely to prove not less productive than the average of opiums in the European market. I have evidence that it contains the following proximate principles characteristic of opium, viz., morphia, codeina, narcotina, and meconic acid. When the opium had been exhausted, first by distilled water, and then by dilute acetic acid, the insoluble residuum amounted only to about 17 per cent. and the ash to 3·3. The morphia was estimated both by the process of Gregory and by that of Mohr; and the narcotina was also ascertained by two distinct processes.

"1. *Estimation of the Morphia.*—1st. By the well-known method of Dr. W. Gregory, I obtained from 50 grains of the opium, gr. 4·7 of the common muriate of morphia, or 9·4 per cent., which indicates nearly 7 per cent. of pure morphia. From this muriate I procured a minute quantity of codeia. The precipitated morphia was turned red by nitric acid, and blue by sesqui-

chloride of iron. The infusion and the precipitated salt of lime were coloured blood-red by sulphated peroxide of iron, which is the property of meconic acid.

"2d. Seventy-five grains of the opium were in the next place treated according to the process of Mohr. It was digested with successive portions of distilled water; first, for 48 hours, and then for 36, and 24 hours at a time—the infusion being always well expressed from the residuum. The liquid being brought to boil, was poured into boiling hot milk of lime, containing twenty grains of the caustic earth, and when it had boiled a little while, it was filtered, evaporated down, and boiled with sal-ammoniac as long as odours of ammonia escaped. The precipitated morphia being washed and dried, was almost colourless, and weighed altogether gr. 6·675, which is 8·9 per cent. It was entirely soluble in oxalic acid, and was rendered blue by sesquichloride of iron, and red by aquafortis.

"From these two separate processes it is to be concluded that the opium contains not less than 7½ to 8 per cent. of this alkaloid, and, therefore, that a pound weight (avoirdupois) would yield nearly 13 drachms of good muriate of morphia.

"II. *Estimation of the Narcotina.*—1st. Fifty grains of the opium, dried and pulverized, were digested for two days in half a fluid ounce of ether, with the aid of a gentle heat. The solution was then poured off, and the mass being dried and powdered again, the digestion was repeated twice more, for a day each time, with fresh ether. This residuum was then washed with ether, and the whole solution evaporated nearly to solidity, and till it had no ethereal odour. This extract was of a dark-brown colour, and it reddened litmus paper. On treating it with warm and weak muriatic acid, a reddish solution was obtained, and a tough dark gray residuum, insoluble in water, and of the character of caoutchouc. In the next place, the solution was boiled with animal charcoal, filtered and precipitated with excess of ammonia. The light gray precipitate thus obtained, being heated in alcohol, some black matter was left undissolved, and the crystals of narcotina weighed gr. 0·85 or 1·7 for 100 parts of the opium.

"2d. The residuum of the opium from processes 1 and 2 was digested for some days in dilute acetic acid, with the aid of a gentle heat, and the filtered infusion treated with ammonia in surplus. The black agglutinated precipitate was redissolved in acetic acid; its solution clarified by animal charcoal; and when the treatment with volatile alkali had been repeated, the washed precipitate weighed gr. 1·2. Being of a gray colour, it was doubtless mixed with some colouring matter, so that the result of this second experiment confirms the preceding, to the effect that the opium contains but a small per centage of narcotina.

"It is not, indeed, to be relied upon as determining the real amount of narcotina, for we know that some of this alkaloid comes away by the maceration in water for morphia; but as the greater part of it is left in the residuum, we may justly regard the obtaining so small a quantity, as gr. 1·2 (impure) from the solid remains of 75 grains of the opium, a proof of the correctness of the former estimation by ether, which is the proper menstruum of narcotina. In regard to the morphia, the estimation, by process No. 2, must be considerably nearer the truth than the first trial, in consequence of the greater security against loss in the prompt method of Mohr. In proceeding with No. 1, I had such a multitude of manipulations, as inevitably to cause serious diminution of the product. However, in the following comparison of the hill opium with those of Turkey and Egypt, which were analysed by Mulder and Schindler,

we shall take the morphia at 7·95 per cent—the mean between our two experiments.

| | | | |
|---|---|---|---|
| Hill opium, Morphia, per cent. | 7·95 | Narcotina, per cent. | 1·70 |
| Smyrna opium (picked) | 10·84 | Ditto | 6·80 |
| Ditto | 9·85 | Ditto | 9·36 |
| Ditto | 10·30 | Ditto | 1·30 |
| Egypt opium | 7·00 | Ditto | 2·68." |

*Salts of Morphia.*—In a paper by the Messrs. Smith, of Edinburgh, entitled 'The Alkaloid Salts, and their relative Influence on the Animal Frame,' they give the preference to the hydrochlorate over the other salts of morphia, on the ground of its being the most readily and easily prepared, most easily obtained in a state of purity, sufficiently soluble, and least liable to undergo decomposition.

10. *Quinine.*—Liebig has recently analysed the substance known to chemists as quinoidine, and finds it to be isomorphous, and apparently identical with quinine. As it is of the utmost importance that all chemists engaged in the preparation of the alkaloids should be acquainted with the process of which he has arrived at this conclusion, we give a full abstract of the memoir.

In the preparation of sulphate of quinine, after all the crystals which can be obtained are separated, a dark-coloured mother-liquor remains, having an extremely bitter taste. On the addition of an alkaline carbonate, this liquid loses its colour and bitter taste, depositing, at the same time, a yellowish-white or brownish precipitate, which, after being rinsed with water, and exposed to a gentle heat, agglutinates into a coherent mass, exhibiting the appearance of resin.

From the experiments of Sertuerner, Thiele, Bucholz, jun., Koch, and other chemists, it has been long known that this resinous substance possesses the properties of a base, that it neutralizes acids perfectly; but the salts which are formed by these combinations with acids have baffled all attempts at crystallization.

Sertuerner, who was the first chemist to separate this resinous substance from the mother-liquor of sulphate of quinine, considered it to be a distinct and peculiar organic base, existing in yellow and red cinchona barks, associated with quinine and cinchonine. He assigned to this, as he supposed, new substance, the name quinoidine, and greatly extolled its medicinal efficacy, in which he declared it was in all respects equal to quinine. In his journal (Ueber die neuester Fortschritte in der Chemie, Physik und Heilkunde, Bd. iii, No. 2, page 269), he terms it " a true fever-destroyer."

Subsequently this substance, under the term quinoidine, has been employed medicinally in many places, and even introduced into the lists of commercial articles or price currents of many of the druggists of Germany.

In certain mother-liquors of quinine left in the preparation of the sulphate, which were analysed by Henry and Delondre, and also a sample of quinoidine examined by Geiger, these able chemists discovered an amount of quinine and cinchonine, accompanied by a resinous substance which they considered impeded the crystallization of the sulphates of the two bases, and which in their experiments they failed to separate. The results obtained by these chemists, and the inferences obviously deducible from these results, rendered it indubitable that the medicinal efficacy of quinoidine must vary according to the greater or less proportion of quinine it may happen to contain. Now there cannot be a doubt but that this uncertainty with respect to the relative amount of qui-

nine in commercial quinoidine has prevented many physicians from prescribing the latter as a remedy, notwithstanding the testimony borne to its efficacy.

Having occasion, some time since, to pass through Coblentz, Liebig procured from Messrs. Jobst and Co., of that town, a sample of quinoidine, for the purpose of employing it for the preparation of quinoleine—a substance discovered by Gerhardt to result from the transformation of quinine, and to which much scientific interest attaches, in consequence of the recent discovery of Professor A. W. Hoffmann, that quinoleine is identical with leucol, a body which is one of the components of the essential oil of tar, prepared from anthracite coal. It then occurred to him, that if the sample of quinoidine which he had procured contained quinine, it must yield a corresponding amount of quinoleine, and that, consequently, a very simple method of testing quinoidine for the amount of quinine it may contain might be based upon this property of quinine to be transformed into quinoleine.

On subjecting the sample he had obtained (which amounted to several ounces) to distillation with strong potass ley, he was surprised at the large amount of quinoleine produced, which proved the presence of a far larger proportion of quinine than could have been anticipated. This unexpected result induced him to subject quinoidine to a stricter examination; and in order to avoid being misled by accidental circumstances, he procured, beside the Coblentz sample, specimens from Messrs. Hess, Leissler, and Fiedler, of Mayence, and from Messrs. Mettenheimer and Simon, at Frankfort, and also from a druggist at Hamburgh.

These various samples of quinoidine were partly in irregularly-shaped masses, and partly as square cakes of a darker or lighter brown colour, which, by the warmth of the hand, became soft and flexible, but were readily pulverizable in the cold. The operation of powdering imparted to it an extraordinary degree of elasticity. All these samples were completely insoluble in cold water, but scantily soluble in hot water, imparting to the latter a strongly bitter taste.

All the first samples dissolved in alcohol, in the proportion of one part to two of the menstruum; and from this alcoholic solution water precipitates copious, yellowish-white, resinous flakes, which cohere into a mass like the original quinoidine. Dilute mineral acids, as well as most of the organic acids, dissolved it entirely, and by adding a sufficient amount of the substance, became completely neutralized. From these solutions in acids, ammonia and alkaline carbonates precipitated resinous flakes. On agitating the fluid containing these flakes and the flocculent precipitate with an equal volume of ether, the precipitate dissolves in the ether, *with the exception of a dark-brown residue.* On evaporating the ether, a resinous mass is obtained, having all the properties of an organic alkaloid.

Its salts are precipitated by tannic acid. Chloride of platinum produces in its solution in hydrochloric acid a yellow precipitate. Moreover it dissolves completely in a solution of sulphate of copper with the separation of oxide of copper. Now there exists no resin, nor, indeed any other substance similar to resin, which possesses this peculiar property.

These observations can leave no doubt whatever as to the chemical character of a considerable proportion of the residue to which the term quinoidine has been applied—namely, that it is a true organic base.

On subjecting the purified substance to elementary analysis, the following were the results:

1st. From the quinoidine of Mayence, 0·490 grammes yielded 1·3204 grammes of carbonic acid, and 0·3395 grammes of water.

2d. From the quinoidine of Frankfort, 0·618 grammes yielded 1·6575 grammes of carbonic acid, and 0·4250 grammes of water.

3d. From the quinoidine of Coblentz, 0·3475 grammes yielded 0·9475 grammes of carbonic acid, and 0·2375 grammes of water.

According to these analyses, this substance contains

| | 1. | 2. | 3. |
|---|---|---|---|
| Carbon . | 73·49 | 73·14 | 74·33* |
| Hydrogen . | 7·69 | 7·64 | 7·57 |

The determination of the nitrogen, by the method of Varrentrapp and Will, yielded the following results:

0·515 afforded 0·289 of platinum.
0·617 „ 0·401 „

And, consequently, the substance under examination contains, according to the first analysis, 8·04 of nitrogen; according to the second, 9·54 of nitrogen; the medium of the two analyses giving us as its amount of nitrogen, 8·79.

11. *Analyses of the Chloride of Platinum and the Base from Quinoidine (Amorphous Quinine).*—I. 0·6663 grammes of the double salt yielded 0·1755 of platinum; 0·8700 grammes of the double salt yielded 1·349 of carbonic acid, and 0·303 of water.

II. 0·881 grammes of double salt yielded 0·224 of platinum.

III. 1·0668 grammes of double salt yielded 0·2715 of platinum.

From these analyses, therefore, the following are the proportions of carbon, hydrogen, and platinum, which exist in 100 parts of the chloride of platinum, and the substance derived from quinoidine:

| | 1. | 2. | 3. |
|---|---|---|---|
| Carbon . . | 32·44 | | |
| Hydrogen . | 3·86 | | |
| Platinum . . | 26·33 | 26·32 | 26·45 |

Now, if we compare the proportion of carbon, hydrogen, and platinum existing in the chloride of platinum and this base, derived from quinoidine, with the amount of the same elements present in the corresponding chloride of platinum and quinine, and, further, the amount of carbon, hydrogen, and nitrogen contained in the substance under examination, with the proportion of the same elements as they exist in quinine, we perceive at once that the two substances have identically the same composition.

Quinine, according to the formula

$$C_{20}\ H_{12}\ NO_2$$

contains

Carbon, 74·33; hydrogen, 7·75; nitrogen, 8·62.

Chloride of platinum and quinine, according to the formula

$$Cl\ H\ C_{20}\ H_{12}\ NO_2 + Cl\ Pt$$

contains

Carbon, 32·38; hydrogen, 3·53; platinum, 26·83.

The inference from these experiments, then, is irresistible; the uncrystalline substance derived from quinoidine bears exactly the same relation to ordinary quinine that uncrystalline sugar (barley-sugar) bears to crystalline (sugar-candy). Both yield the same products of decomposition; both have the same atomic weight, and identically the same composition; they differ only in form: in one word, the one is crystalline, the other *amorphous*.

This is undoubtedly an important discovery, when we consider the high

* Carbon = 75, according to Prout and Dumas.

price of quinine, the possibility of a check to the supply of cinchona bark from the countries producing it, and the amount of the crude quinoidine which has accumulated since the manufacture of sulphate of quinine was commenced. Quinine, indeed, seems to be absolutely indispensable for the treatment of diseases; the progress of civilization in modern times has depended, far more than has been conceived, upon the discovery of a remedy for the fevers which prevail where tillage is imperfect, and in new and unbroken soils.

This chemical investigation has thrown an interesting light upon the testimonies borne to the efficacy of quinoidine in the treatment of fever, and the highest encomiums have been passed upon it; but the commercial specimens have differed very much in value; while some have consisted nearly altogether of amorphous quinine, others have contained only a small per centage.

It is necessary that the amorphous quinine should be separated from all admixtures and impurities, and prescribed in its pure state. There can be no doubt but the same substance will produce the same effect on the animal organism, whether exhibited in a crystalline or an amorphous state. The system, as we may say, makes no difference in such a case.

In a commercial point of view, it is certainly a matter of great importance that we should be able to judge by the mere external appearance of a remedy of its purity; and, consequently, how far we may rely upon its efficacy. This is thought to be the case with the crystalline sulphate of quinine, whilst the non-crystalline form of quinoidine has probably led to a disregard of the evidence for its usefulness, even more than the fact of its being, as usually sold, an admixture of various substances. But with respect to the mere amorphous form, when the quinine is separated from all its adhering impurities, it is in the same case with opium, castor, and many more of the most efficient remedies which we possess, particularly with the extracts of our pharmacopœias. It is necessary to be assured of their purity before we employ them, but their amorphous form does not prevent their use. In many of these cases, indeed, having no direct or ready way of testing them, we rely solely upon the honorable character of the merchant and dealer; but we have a completely satisfactory test for the purity of amorphous quinine. Few medicinal agents afford so ready a means of distinguishing them and detecting admixtures as the organic alkaloids; but if these tests are not employed, it is as easy to be deceived in purchasing crystalline sulphate of quinine as the amorphous.

Amorphous quinine is completely soluble in dilute sulphuric acid and in alcohol; it is also completely soluble in a solution of sulphate of copper, with separation of oxide of copper. And if its solution in a dilute acid yields, upon precipitation by means of ammonia, exactly the same amount of precipitate as the weight of the substance originally dissolved in the acid, there can be no doubt remaining as to the perfect purity of the sample under examination.

It only remains to observe, that no dependence should be placed upon the ordinary quinoidine of commerce. As has been already stated, some samples dissolve incompletely in water, forming a dark-brown muddy fluid; these have been probably produced by simply evaporating the mother-liquors of sulphate of quinine to dryness. They are therefore uncertain mixtures of various substances with sulphate of amorphous quinine, with or without excess of acid, so that in purchasing such specimens, the buyer is paying the price of an organic alkaloid for sulphuric acid, &c. The pure amorphous quinine should be separated, and it would then form a most valuable remedial agent; but the prescriber must be assured of its purity, and the test already given will suffice for this purpose.*

* Lancet, May 23, 1846.

M. Ducros has observed a very singular circumstance in connexion with the administration of the ordinary crystallized alkaloid. He states that sulphate of quinine employed as a lotion on the tongue, the velum palati, the inside of the cheeks, or the back of the throat, produces, in doses of less than a grain (five centigrammes), an abundant salivation, with a very decided bitter taste. The action is much more powerful and more rapid than if the dose is pushed to a scruple and a half, and introduced into the stomach or intestines, and further, there is no fear of the unpleasant symptoms known as quininism. The rapidity of its action is of especial importance in dangerous intermittent fevers. Administered as a lavement or in pills, its action is not apparent for at least five or six hours; but when applied to the fauces, if we can only administer it half an hour before the third attack, which is so often fatal, there is time for the reaction to take place.

The tendency of this medicine to produce abortion has been noticed by M. Petit Jean; fifteen grains a day frequently producing that result. This opinion was, if we mistake not, given some years by Rayer.

A singular fact has been observed by Bouchardat in relation to the physiological action of this medicine, namely, that to animals living in the water, quinine is infinitely more dangerous than morphia. Those who are interested in this subject would do well to consult a paper by Desiderio, on the physiological action of this salt, based on sixty-eight experiments on the lower animals.

This medicine is now extensively used in France in cases of acute rheumatism. The ordinary dose being fifteen grains the first day, and double that quantity on the second and succeeding days, divided into six or eight doses. Under this treatment alone the average duration of acute articular rheumatism, when the patient enters the hospital on the second or third day, is stated to be ten or twelve days.

Quinine has recently been combined with arsenic acid, forming an apparently useful combination. The following are the rules given by Bourières for preparing it. Take sixteen parts of sulphate of quinine, dissolve in boiling water, and precipitate by ammonia; this yields ten parts of quinine, which must be washed and dried. Three parts of arsenic acid must then be dissolved in 100 of distilled water, to this the quinine must be added, and the mixture allowed to boil. The substances combine, and on cooling we obtain crystals of arseniate of quinine. These must be purified by washing and recrystallizing in the ordinary manner. It is a white salt, crystallizing in brilliant needles. It is much more soluble in hot than in cold water, and in weak than in strong alcohol. It has been employed by Bourières with success in obstinate intermittent fevers, in doses varying from one to two grains in twenty-four hours.

12. *Oxalis Crassicaulis.*—This plant was originally brought from Peru, but has for some time been employed in Europe. The tubers, which are very abundant, afford a very agreeable and nourishing article of food. The stems and leaves yield an extremely astringent juice, which has been found very efficacious in numerous forms of passive hemorrhage, in chronic catarrhs, dysentery, gonorrhœa, &c. The following is its mode of preparation:—A little before the frost sets in, the stems are collected and submitted to strong pressure, by which a quantity of juice is extracted, amounting to about three fourths of the weight of the stalks and leaves employed. This juice readily mixes with syrup, and forms an acid syrup of a slightly aromatic flavour. M. Montain, of Lyons, has used the juice internally in doses of three to six spoonfuls daily, and has likewise prescribed it in lavements and other injections.

13. *Kino.*—Dr. Royle has published an historical notice of this drug, and a description of the tree yielding Malabar Kino, in the May number of the 'Pharmaceutical Journal.'

14. *West Indian Remedies.*—A report on the progress of materia medica would necessarily be imperfect that did not notice the numerous memoirs presented to the Pharmaceutical Society on this subject by Dr. Hamilton. During the past year he has communicated notices of the *Argemone Mexicana* and *Hura crepitans*, both of which yield a fixed oil capable of being used both in pharmacy and the arts; the *Jatropha curcas*, or common physic nut, whose seeds yield an oil which is occasionally given in the West Indies, in half-ounce doses, as a hydragogue in dropsical affections, and whose leaves applied hot to the bowels are so efficacious, that the plant has acquired the name of *Bellyache Bush;* the juice obtained by cutting or breaking the branch has long been used by the negroes for dispelling tumours, and made into an ointment, has been advantageously applied in induration and ulceration of the rectum. The mixed juices of the *Jatropha multifida*, or French physic nut, and the *Argemone Mexicana* form a native cancer remedy, and if we are not inclined to place full reliance on its powers as curing that form of disease, there seems fair evidence of its value in dispersing various non-malignant tumours. The oil of the French physic nut is used in burns, and is said to remove the itch; applied by friction to the stomach, it is taken up by the absorbents, and acts as an aperient and anthelmintic. The Fevillea cordifolia, or antidote coccoon, is regarded by Dr. Hamilton as possessing valuable properties. It is popularly regarded as antisyphilitic, emmenagogue, and stomachic, and the oil obtained by pressure from the seed is regarded in the Brazils as a sovereign remedy for the rheumatic pains resulting from exposure to the cold and dews of night. The tincture is prepared by macerating eight or ten of these coccoons, scraped and bruised in a mortar, in a pint of spirit for two or three days, frequently shaking the bottle, and diluting the tincture with an equal quantity of water. This tincture is a good stomachic, and is stated to counteract the effects of various poisons; it likewise appears in larger doses to act as an energetic hydragogue. The gum exuding from the *Rhus metopium* has been long known in the West Indies for its medical properties. When hardened by age it is reputed to act as a diuretic, and is given in pills for the cure of gonorrhœa. Applied as a plaster it gives relief in gouty and rheumatic pains, and for wounds and excoriations, the following formula is strongly recommended by Barham and Brown:

℞ Gummi rhus metopii.
Adipis preparati aa ℥iv.
Ceræ albæ.
Pulv. aristolochiæ odorat, aa ℥ij.
Resinæ flavæ, ℥j.
M. ut fiat ceratum.

This aristolochia is a climbing plant very common in Jamaica. The roots in decoction are an excellent tonic stomachic, but the tincture is a still better preparation, and combined with iron, is stated to be very effectual in restoring the menstrual discharge, when suppressed or interrupted.

Dr. Hamilton has also contributed excellent papers 'On the Medical Properties of the Various Species of Cassia found in the West Indies;' 'On the Properties of the Hippomane Mancinella, or Manchineel Tribe;' and 'On the Medical and Commercial Properties of the Cæsalpinia Coriaria, or Dividivi.' From the very large quantity of tannin contained in dividivi, Dr. Hamilton recommends its external application in the form of ointment in hæmorrhoidal

affections, and the tincture in those cases of diarrhœa in which astringents are admissible. The tincture to be efficacious must be newly prepared, as in the course of a few days it usually becomes turbid.

The same subject has been considered by Dr. Winder*, from whose paper we select the following observations.

One of the remedies in great use amongst the Indians is the *Geranium maculatum*, which many eminent physicians of the United States rank as one of the most powerful vegetable astringents, being principally composed of *tannin* and *gallic acid*. In the second stage of dysentery and diarrhœa, after evacuants, in hæmorrhages of the alimentary canal, and as a styptic in external bleedings, it rarely fails of giving relief. Its dose is from gr. x. to 3ss. of the powder, or 3ss. to 3j. of a decoction made with a drachm of the root to half a pint of boiling water. With the Indians it is a favorite external styptic, the dried root being powdered and placed on the mouth of the bleeding vessel. It is also much used by them as a wash in leucorrhœa. Internally, in doses of half a teaspoonful in cold water, they consider it very efficacious in hemoptysis; and in this opinion they are fully sustained by Thacker, Mease, Bigelow, and others.

The *Xanthoxylum fraxineum*, or prickly ash, is one of the most valuable remedies of the Indians for the cure of rheumatism. It is said to resemble guaiacum in its properties, and is much used by the Americans as a remedy in chronic rheumatic complaints, and particularly in cases of a syphilitic taint. Bigelow says he gave the bark of this shrub in doses of 10 and 20 grs. with great advantage.

The *Xanthoriza apifolia* is an excellent tonic. Its composition is principally *resin* and *gum*, and the taste is intensely bitter. The dose is ℈ij of the powdered root. The Indians administer it as a diuretic in dropsy, and also use a cold watery infusion for sore eyes.

A favorite and well-known remedy with the aborigines is the *Eupatorium perfoliatum*, having the familiar names in the United States of Boneset, Crowswort, Thoroughwort, &c. Its taste is intensely bitter, with a slight astringency, but no acrimony; and its operation is tonic, sudorific, or cathartic, according to the mode of its exhibition. It is given in *cold* infusion in intermittents, continued fevers, and inflammatory diseases; to produce vomiting and catharsis, in *hot* infusion; and as a tonic, in substance. In the United States Pharmacopœia there is an officinal formula.

*Infusum Eupatorii.*—The natives administer it with good effect in fever, and as a common drink in acute rheumatism, pouring a quart of boiling water on 2 drachms of the leaves, and drinking about 3 oz. three times in the day.

The *Cornus florida*, or dog wood, is said to differ little in its chemical composition from the Peruvian bark; and Dr. John Walker states, that of all the indigenous tonics this is the most beneficial in intermittents. 35 grs. of dog wood bark are said to be equal to 30 grs. of cinchona. The Indians use a decoction of small branches and buds, in want of appetite and debility of the stomach. It is valued also as a poultice to correct ill-conditioned sores.

The *Polygala Senega* is too well known to need description. It is much used by the Indians, who give it in cold infusion during the remission of fevers attended with great prostration of strength; and in diseases of the pulmonary organs. They also esteem it highly in female complaints; and in this agree with Dr. Chapman, who considers it the most efficacious emmenagogue, and useful in all forms of amenorrhœa.

It is not a little remarkable, that among all the Indian tribes known to

* Brit. Amer. Med. Journal, Jan. 1846.

Europeans, the *production of increased perspiration* constitutes one of their principal remedies. A favorite and universal mode of procuring this, is by the use of the vapour-bath. The construction of this is similar throughout the different nations of the north-west. Mr. Cormack, in the account of his expedition to discover the aborigines of Newfoundland, or Red Indians, says that he discovered in a deserted village the remains of a vapour-bath. The method used to raise the steam was by pouring water on large stones made very hot. Over these a hemispherical frame-work, closely covered with skins, was placed to exclude the external air. The patient then crept in under the skins, with a birch-rind bucket of water, and a small bark dish to pour the water on the stones, and thus enable him to produce the steam at pleasure. He remains so long as the heated rocks retain sufficient heat to raise the vapour, when he retires, wrapped in a robe or blanket, and goes to bed. The bath is principally used in rheumatism, dropsy, and the cold stage of fever. Warm sudorific infusions are taken in the bath; and the debility induced is sometimes so great that the patient faints; which, however, followed by proper treatment, generally has a beneficial effect.

The Indian is guided by experience in the treatment of disease. For example, when suffering from acidity of the stomach, he takes some of the absorbent earths that are found on the banks of the rivers. Bleeding, in their inflammatory diseases, is also much used. But the simple native of the forest does not employ the former from any knowledge he possesses of the principles of chemistry, nor the latter from any acquaintance with the laws of physiology.

That the Indians are acquainted with the mode of relieving inward pains by treatment *similar to Moxa*, is seen by their burning a piece of touchwood over the pained part, and suffering it to produce a blister. They are also aware of the advantage of relaxing the muscles in dislocations; for in cases where they do not succeed readily, they nauseate the patient to a most distressing degree, and then find very little difficulty in reducing the luxation. Tumours and abscesses are allowed to suppurate generally without any application to them. When much inflamed and painful, plasters of bruised herbs or warm fomenting poultices are used. If matter forms they make an incision for its escape, and continue the poultices to promote the discharge.

15. *On the Formation of Volatile Oil in dry Antiscorbutic Plants. By M. Lepage.**—It has been long believed, that after desiccation antiscorbutic plants, such as wild radish, scurvy grass, and watercress lose all their medicinal virtue, which is known to reside chiefly in an acrid and volatile oil. M. Lepage has, however, by a well devised series of experiments, shown that this is not the case. His conclusions are:

1. That by submitting dry antiscorbutic plants to distillation with water, but without any previous maceration in cold water, we merely obtain hydrolates of a faint smell, and almost tasteless.

2. The same plants, recently dried, and macerated in cold water, before distillation, produce milky hydrolates of a pungent odour, and exactly resembling those obtained from recent plants.

3. That, after being dried for several months, the radish and the scurvy grass, alone, without having completely lost the faculty of yielding volatile oil by contact with cold water, appear, nevertheless, to possess this property in a smaller degree; but that this faculty may be easily restored to them by means of the myrosyne of white mustard.

4. That if we add an emulsion of white mustard seed to an infusion of

* Journ. de Chem. Méd. March, 1846.

radish, and scurvy grass, made in hot water, but afterwards allowed to cool, we soon perceive the sharp and pungent smell become developed in the liquid, the odour of which is due to the essential oil, which can be obtained by distillation.

5. That alcohol prevents the development of the essential oil in dry antiscorbutic plants, apparently because this liquid is not able to dissolve the albumen (myrosyne) naturally contained in these plants, and coagulated by desiccation, the albumen not being able to react, except when in solution, on the other principle also naturally contained in antiscorbutic plants, so as to enable the essence to be formed.

6. That the alcohol, which in antiscorbutic plants dissolves the principle that communicates to them the faculty of yielding essential oil by contact with myrosyne, is nevertheless less capable of dissolving this principle than water.

7. That white mustard seed is not the only substance containing the principle (myrosyne of M. Bussy) which is able to extract volatile oils from odorous infusions of radish, scurvy grass, and water-cress, because he has met with this property in the seeds of many other plants of the same family of cruciferæ. He is inclined to believe that this myrosyne exists in the seeds of all cruciferous plants, from having discovered it in all those he has examined.

8. That strong acids, caustic alkalies, alkaline carbonates, and metallic salts, prevent the formation of the essence in dry antiscorbutic plants in contact with water, exactly in the same manner as they prevent the formation of the essence in black mustard, placed under the same conditions.

9. That although all the facts related above may have been such as to induce us strongly to suspect the existence of a *myronate* (myronate of potash or lime) in the vegetables in question, the experiments made, for the purpose of extracting this salt from the radish, proved clearly, that it does not exist.

10. Finally, he concludes that we can, in case of necessity, prepare medicaments with dry antiscorbutic plants, which form their basis in a recent state, but that their substitution in laboratories for those obtained according to the formula of the Pharmacopœia, ought, nevertheless, not to be made without special directions.

Since this work has been concluded, he has been able to prove the presence of myrosyne in the fruits of various cruciferous plants; the fruits on which he experimented are those of the following plants:

| | |
|---|---|
| Erysimum | barbarea. |
| | cheiranthoides. |
| | officinale. |
| Lepidum | sativum. |
| | latifolium. |
| | ruderale. |

16. *On the Preparation of Valerianate of Zinc.*—Fredcrking distilled 12 lb. of valerian-root with 45 lb. of water over a good fire. When 25 lb. had passed over, hot water was again added to the residue, and this repeated as long as the distillate reddened litmus. The 50 lb. of liquid which passed over were heated nearly to boiling, and then a previously weighed solution of carbonate of soda (1 part to 3 parts water) added until the liquid presented a slightly alkaline reaction; this required 3 oz. crystallized carbonate of soda. The liquid was then evaporated down to 4 lb., and separated by filtration

from a resinous residue, which was again exhausted with 3 drms. of crystallized carbonate of soda and 12 oz. of boiling water. The filtered solutions were now evaporated to 8 oz., along with 3 oz. of sulphate of soda to raise the boiling-point; and a sufficient quantity of sulphuric acid (9 drms.) added to saturate the carbonate of soda employed in excess, and distilled to dryness, when at first a limpid fluid passed over, and subsequently the hydrated acid. The latter was dissolved in water, and boiled for two hours in a retort with recently precipitated carbonate of zinc, filtered, the residue edulcorated, and the filtered solution evaporated in a retort. The liquid which now passed over saturated 50 grs. hydrate of baryta, from which 4 scruples of valerianate of quinine were obtained with sulphate of quinine. The concentrated solution of the valerianate of zinc, removed from the retort, was further evaporated in a dish, collecting on fine linen the saline pellicle as it appeared, which was then pressed between blotting-paper. The residue, evaporated to dryness, yielded a somewhat coloured salt. With the above quantity of valerian-root, 6-7 drms. of zinc salt may be obtained.

Henry draws attention to the disadvantages of the above method, as the concentration of the saline solution in a retort, as also the further evaporation, require too much time, and are moreover attended with loss. They are avoided by using, for the preparation of the zinc salt, valerianate of soda and sulphate of zinc. When, for instance, a hot concentrated solution of the valerianate of soda is mixed with a hot solution of sulphate of zinc, the sparingly soluble valerianate of zinc separates in beautiful white laminæ of a mother-of-pearl lustre. If the liquid be now allowed to cool perfectly, and the magma of crystals brought on to linen and pressed, a beautiful preparation is obtained; a further quantity of the salt may be procured by concentrating the filtered liquid.

Dumesnil recommends the following process. A copper still is filled with valerian-root and a little water, and distilled until the product has no longer an acid reaction; it is then saturated with carbonate of soda, and evaporated in the retort to spec. grav. of 1·030. The residue of the first distillation may still be used, according to the author, for the preparation of an extract equal to that obtained by decoction. The product, saturated with soda and concentrated, is acidified with some sulphuric acid, and distilled until the contents of the retort begin to thicken. The turbid acid distillate is mixed with recently precipitated carbonate of zinc till it ceases to effervesce, when it is filtered and well washed. The filtered solution is then evaporated, and the pellicle skimmed off as it forms. By pressure between blotting-paper, the salt may be entirely freed from mother-ley.*

17. *On the Preparation of Benzoic Acid.*—Drs. Bley and Diesel found, on comparing the various methods hitherto recommended, that no one perfectly answered the purpose, and propose the following: 8 parts of coarsely-powdered benzoin are heated to boiling with 3-4 parts hydrate of lime and 80 parts water, with constant stirring. The mass, pressed between linen, is boiled again twice with a little water, and again submitted to pressure. When the liquid has become sufficiently clear, it is filtered, and is evaporated down to one fifth; a slight excess of muriatic acid is then added to it, when the acid separates in beautiful crystals on cooling. It is purified by resolution in hot distilled water, filtration, and crystallization. On concentrating the liquid containing the chloride of calcium and the wash-water from the separated acid, a further quantity of slightly-coloured benzoic acid is obtained. 100 parts benzoin from Siam yielded 7 parts of pure and 1½ part of somewhat coloured

* Archiv der Pharm., xliii, p. 2, and xliv, p. 173.

acid. Another kind gave 11 per cent. pure, and 2 per cent. slightly coloured acid. A sample of *Styrax amygdaloides* yielded 13 per cent. pure and 2 per cent. impure acid. According to the experiments of the authors, the proportion of acid seems to vary in the different kinds, but the *Styrax amygdaloides* appears to contain most.*

18. *The Means of ascertaining the Efficacy of Digitalis. By M. Falken.*—According to M. Falken, the following plan is a means of ascertaining, in an infallible manner, whether or not digitalis possesses its virtues.

50 centigrammes of the powder of the leaves of digitalis are to be infused in boiling water, and after an hour to be strained off. When cold, 20 to 30 drops of a solution of ferrocyanide of potash are added, prepared with 75 centigrammes of this salt, to 15 grammes of distilled water.

If the digitalis is active, the infusion becomes rather clouded, but if the cloud does not appear before ten or fifteen minutes, we may consider the digitalis as not possessing a sufficient degree of activity.

According to M. Falken, the digitalis grown in Switzerland has proved the most active.

19. *On Myrrh, and on the Means of distinguishing it from Bdellium. By Bley and Diesel.*—The extremely different amount of essential oil obtained from myrrh, varying between 3·60 and 3·10 per cent. depends, according to the authors' observations, on the oxidation of the essential oil. Myrrh, which contains but little of this oil, always exhibits a strongly acid reaction, which is never found in that containing a greater proportion. Humidity especially favours the oxidation, and the moistening myrrh with alcohol to give it a better appearance should be entirely dispensed with. In the preparation of the essential oil, the water freed from the oil is found to have a strong acid reaction. This was saturated with carbonate of lime mixed with acetate of lead, evaporated, and treated with absolute alcohol, when formiate of lead was precipitated. This salt was decomposed by means of phosphoric acid, and the presence of the formic acid confirmed by the tests with perchloride of mercury and perchloride of iron. The essential oil of myrrh gradually acquires an acid reaction by exposure to the air, becoming at the same time thickened to a turpentine-like mass. The residuary balsam-resin dissolves readily in ether, alcohol and oil of turpentine, has at first a slight, subsequently a strong, bitter taste, and melts readily on the application of heat. The oil of myrrh is probably a carburetted hydrogen of similar constitution to the oil of turpentine. Benzoic acid is said by Brandes to occur in myrrh; the free acid, however, which he considered to be benzoic acid, appears to be nothing more than formic acid.

Pseudo-myrrh, which has been frequently found mixed with the genuine myrrh, consists of large pieces of different forms, the majority of them seeming to be fragments of a cylindrical body; they are coated externally with dust, and have a dirty reddish-brown colour; the surface of fracture is tolerably even, of vitreous lustre, brownish-yellow colour, and nearly as transparent as Senegal gum. It has a faint myrrh-like odour, and a disagreeable bitter, somewhat balsamic taste. Nitric acid dissolves it to a bright yellowish liquid, from which water separates small yellowish particles. Genuine myrrh yields with nitric acid a transparent dirty yellow liquid. *Bdellium indicum* is not dissolved by nitric acid; it softens, becomes whitish and opaque. Bibulous paper, moistened with the alcoholic extract of myrrh and then with nitric acid, acquires the blood-red colour first observed by Bonastre; bdellium and pseudo-myrrh exhibit only a yellow or brownish colouring. *Bdellium indicum* is moreover distinguished by its greenish-brown colour, its more tere-

* Archiv der Pharm., xliii, p. 17, or Chem. Gazette, No. 86.

binthinate odour, and bitter and somewhat acrid taste. It becomes viscous when held for some time between the fingers. Myrrh yields a bright golden yellow tincture and an opaque whitish residue; pseudo-myrrh, a light yellow tincture and a semi-transparent residue; *Myrrha indica*, a dark yellow tincture and an opaque residue. An addition of water produces in the first and last a milky turbidness, and in the second no change. Nitric acid (6 drops to 20 of the tincture) yields with *M. electa* a yellowish-white opacity, upon which after a time the periphery of the liquid acquires a bright violet colour, while the centre remains yellow. *M. indica* behaves similarly, only that the colour is darker; pseudo-myrrh does not exhibit this reaction. Fuming nitric acid produces with the tincture of *M. electa* an umber-brown, and finally a dark violet colour; on evaporation, a dark gamboge-coloured residue is left; *M. indica* exhibits the same reaction; pseudo-myrrh experiences no change. *Bdellium indicum* and *africanum* are distinguished by their not assuming a violet colour on their treatment with nitric acid. About 10 grs. of myrrh, shaken with an ounce of water and filtered, yield with solutions of salts of the oxide of lead a considerable precipitate. *Bdellium indicum* treated in the same manner, exhibits scarcely any opacity.*

20. *Scammony Biscuits.*—Scammony resin is prepared by digesting repeatedly powdered Aleppo scammony in alcohol, and precipitating the resin by means of water, as jalap resin is obtained from tincture of jalap. When dry, the resin is friable, transparent, and very soluble in spirit. If we drop a saturated solution on biscuit, the fluid is immediately absorbed, and thus forms a very good preparation for children. Dr. Baader was in the habit of ordering a biscuit for adults, to which he added sapo medicatus, and prepared according to this recipe—

℞ Scammoniæ, 3j.
Saponis Venet., gr. v.
Sacchari albi, gr. ix. M.

These ingredients were to be rubbed down to a fine powder, and mixed with one ounce of powdered biscuit. The mass was then to be kneaded with the aid of a few drops of water to a stiff paste, which was dried in the air, and weighed out into portions of 3x. Of this mass 3j. contains gr. vj. of scammony resin. Scammony resin is not unpleasant to take, rubbed down with sugar. Eight grains of the resin are sufficient to produce several evacuations in an adult; six grains are sufficient for an individual of about fifteen years; four grains for a child of seven or eight years; two grains for a child of two years. Scammony is one of the best anthelmintics.

The above-mentioned powder is still sold in the shops at Munich, by the name of Baader's aperient powder.†

21. *On Oriental Copal. By X. Landerer, of Athens.*—It is well known to pharmacologists that there are three varieties of copal, differing from each other in their properties, viz. Brazilian, West Indian, and East Indian or Levantine copal. Of the latter variety the author received the following account from an apothecary, who has lived twenty years in the East.

This Levantine copal is sold in the bazaars of Jerusalem, Mecca, and other places, as a species of choice incense, and is chiefly employed as incense on the altars of Mahomed. It is met with in pieces varying from the size of an egg to that of a walnut or a bean, and is so covered with a coating of dust, that it can only be recognized as copal by breaking it. This coating consists of sand and ferruginous clay, and is said to be produced by the soil in which the gum

* Archiv der Pharm. xliii, p. 304; as translated in the. Chem. Gazette, No. 87,
† Repertorium für die Pharmacie, Band xxxvii, Heft i.

drops from the tree, as the heat of the sun causes it to exude from the stem. The people employed in the collection of the copal, in Palestine and Abyssinia, dig deep trenches round the tree, and then collect and sort the pieces of gum which fall into them. If the pieces can be easily freed of the earth adhering to them, they are placed in hot sea-water, and purified, as far as it is possible, with a brush made of rushes; they are then placed on a mat of rushes and dried, until they appear to be superficially melted by the heat of the sun. If the adherent earth cannot be readily removed, it is sliced off with a very sharp instrument, when the pieces are yet soft from exposure to the heat of the sun.

Copal plays a very leading part in all the fumigating drugs of the East.*

22. *Sulphuric Ether.*—In a memoir on 'The Physiological Action of Sulphuric Ether, applied to the Buccal and Pharyngeal Surfaces of Man and Animals,' M. Duclos† asserts that when rubbed into the aforesaid surfaces it produces sleep; that in hypochondriacs and others suffering from insomnia, he has succeeded in thus procuring agreeable sleep, which was not followed by any of the unpleasant effects that succeed the use of narcotics; and that he has found it highly serviceable in puerperal convulsions, the convulsions of children, in hysterical attacks, and in epilepsy.

23. *On the Action of Bitter Almonds, Cherry-Laurel Leaves, Peach Blossoms, and their distilled Waters, on essential Oils and Aromas generally. By M. Mahier.*—The observations first made with reference to the action of the syrup of almonds in destroying the smell of musk (the truth of which was confirmed by M. Soubeiran, and has since been fully recognized); and subsequently with reference to the action, under similar circumstances, of cherry-laurel water, which was noticed by M. Fauvé, of Bordeaux, induced the author to generalize this reaction on essential oils, and on other strongly odorous substances.

The results about to be described, although they may not contribute much to scientific knowledge, will nevertheless possess some practical interest, if it be only in affording a quick and easy method of purifying bottles and other vessels from odours which it is found difficult otherwise to remove.

Having recently tried to remove the smell from a marble mortar, which had been used for the preparation of an asafœtida mixture, by the use of vinegar and cinders, the result of which was imperfect and unsatisfactory, he tried the use of bitter almond paste; on rubbing some of this in the mortar, as the smell still continued, he added a little water, which developed the bitter almond smell; this was again rubbed, and the mortar subsequently washed out with water, when it was found that the smell of asafœtida was entirely removed.

This first trial induced him to apply this method to the cleansing of vials and bottles, which had contained camphor, spike oil, essences of clove, peppermint, neroli, lavender, and turpentine, oils of petroleum, copaiba, and cod-liver, creosote, and other odorous substances. All the bottles which had contained the foregoing ingredients, were rendered perfectly odourless, and fit for any use.

It is necessary in those cases where the bottles have contained oily substances previously, to cleanse them from the oil by means of cinders or potash; and those having contained resins should be rinsed out with spirit before using the almond paste.

Cherry-laurel leaves and peach blossoms, reduced to a pulp and introduced into the bottles, produce the same effect. The distilled waters also of cherry-laurel leaves, peach blossoms, and bitter almonds, especially when recently prepared, act in the same manner, with similar precautions, but their use would be more expensive.

* Buchner's Repertorium für die Pharmacie, Band xxxvii, Heft ii.

† Gazette Méd. de Paris, No. 12.

From these experiments it appears that bitter almond paste, the pulp of cherry-laurel leaves, or peach blossoms, may be applicable to the preservation of fish and meat during their transport, as they would at the same time serve as a condiment. The distilled waters of the above substances also might be used to purify the atmospheres of dissecting rooms, newly-painted apartments, hospital-wards, &c.*

## § III.—*Animal Remedies.*

24. *Chemical Examination of several Species of Meloe. By J. Lavini and M. Sobrero.*—The fluid which the several species of meloe excrete when touched has, as is well known, a similar effect to cantharides. It has long been the custom to submit the living animals to pressure in Sardinia, and to employ the expressed fluid when mixed with fat to form an epispastic ointment.

The authors exhausted the coarse powder of several species which occur in Piedmont (*M. violaceus*, *M. autumnalis*, *M. Fucia*, *M. punctatus*, *M. variegatus*, *M. scabrosus*, and *M. majalis*), first with boiling water, and then with alcohol and ether. The aqueous solution, which possessed acrid properties, was evaporated to the consistence of a thin extract, and then treated with ether. The solution was colourless, and deposited on spontaneous evaporation white prismatic crystals, which were identical with cantharidine. When pure, they were insoluble in water, soluble in ether, especially when boiling, in alcohol, sulphuric acid, nitric acid, and solution of potash, but insoluble in muriatic acid. They also dissolved in acetic acid, especially on the application of heat —a property which likewise belongs to cantharidine. They fuse when heated on platinum foil to 410°, giving off white vapours; at a higher temperature they are decomposed, and burn with a white flame, leaving a readily combustible cinder. The analysis yielded 61·77 per cent. carbon, 6·30 hydrogen, and 32·53 oxygen—results which agree sufficiently with those of Regnault, obtained in the analysis of cantharidine.

The powder which had been exhausted with water, and from which the ethereal extract had been obtained, yielded a small quantity more cantharidine, a green oil easily soluble in alcohol and ether, which possessed acid properties, expelled carbonic acid from the alkaline carbonates, and formed soaps with them; moreover a yellow oil, soluble in ether, but almost insoluble in alcohol; and finally, a white volatile substance, crystallizing in warty masses and soluble in very dilute alcohol. When the substance which had been treated with ether was extracted with alcohol, it yielded mere traces of the substances soluble in ether, already mentioned.†

25. *Glycerine.*—The probability of this substance proving a useful application in some forms of cutaneous disease, appears first to have occurred to Mr. Startin. He has described its effects in a lecture on the squamous eruptions, reported in the 'Medical Times,' Feb. 7th.

Its usefulness depends most probably on its property of resisting evaporation, even at a considerable temperature. Mr. Startin says that a common plate wetted with it may be kept in an oven, side by side with a joint of meat, till the meat is cooked, without any sensible diminution in the quantity of the liquid. Hence, when applied to the skin, it remains moist, forming a coating or varnish, not distinguishable from the ordinary secretion of the part. A lotion composed of half an ounce with ten ounces of water, effectually prevents the skin from becoming dry. When used pure it makes the part stiff

* Journ. de Chimie Médicale. † Journ. de Pharm. et de Chimie, vii, p. 467.

and uncomfortable, so it answers best diluted. It is also added with advantage to poultices, and even to baths. Mr. Startin speaks of its use chiefly in Psoriasis, Pityriasis, Lepra, and Ichthyosis, in all which he describes it as producing excellent palliative effects. He promises to give to the profession ere long the results of experiments he is carrying on to determine its virtues in various forms of cutaneous disease, and in the meantime he invites his medical brethren to make trial of it in their practice, and to communicate to him the results. As from the ascertained properties of this substance, there is good ground to think that Mr. Startin's account of its advantages, as well as his expectation of a more extended utility, will turn out to be well founded, it is desirable to publish his invitation to his medical brethren as widely as possible—which is the object intended by the present notice.

The accounts of this substance in our common manuals are for the most part very meagre; a few words, therefore, in addition, on its chemical history may not be unacceptable to those practitioners who are disposed to put its reported properties to the test.

Glycerine is an uncrystallizable transparent fluid, of the consistence of syrup, free from colour when perfectly pure, but usually of a yellowish tint, which may be removed by animal charcoal. It has no smell, the taste is sweet, not unpleasant; and it is heavier than water, 1·250 to 1·280. It dissolves in water in almost every proportion; it is also soluble in alcohol, while it is wholly insoluble in ether. It attracts moisture from the atmosphere, and this, it is probable, is partly the cause of its never drying up when spread out thin. At an elevated temperature it boils, a part passing over unchanged, while the rest is converted into empyreumatic oils, acetic acid, and combustible gases, with a carbonaceous residue. When set on fire, it burns with a clear blue flame. It undergoes no alteration in the air, and cannot be made to ferment even by the addition of yeast. Nitric acid changes it with some difficulty into oxalic and formic acids. Nitrate of mercury affords a strong white precipitate; with chlorine, glycerine forms a white flocculent solid; and with bromine, a dense oily liquid. Boiled with solutions of salts of copper, it throws down metallic copper. The diacetate of lead gives no precipitate; and with the aid of heat, glycerine dissolves the oxide of lead. With potass it forms a compound soluble in alcohol. By sulphuric acid, it has been said, to be converted, as in the instance of starch, into sugar; but the real effect is the production of an acid compound, the sulpho-glyceric acid. This acid with bases affords salts, exhibiting some analogies with the sulpho-vinates—these salts are soluble; the sulpho-glycerate of lime crystallizes in long delicate needles.

Various methods of procuring glycerine have been suggested by the several authorities. That which Mr. Startin employs is got from Apothecaries' Hall, the residue of the process for litharge-plaster. As glycerine does not enter in soaps, it must be contained in the refuse of soap manufactories, so that if a demand arise for it, here are two abundant sources of supply.

When the original process by Scheele is followed, namely, by boiling litharge and oil with a little water, the water takes up the glycerine along with a portion of oxide of lead. The oxide of lead may be got rid of by sulphuretted hydrogen, and the water in part by evaporation; or, if it be desired of high specific gravity, by evaporation in vacuo, side by side with a vessel of sulphuric acid. When animal fat is chosen, this is the best process.* In the details of the first part of the process, the directions given in the pharmacopœias under litharge-plaster, should be adopted. Dr. Ure, however, recommends,

* Simon's Chemistry, vol. i, p. 70.

in the case of olive-oil, no more than half the proportion ordered by the colleges.

When an alkali is preferred to saponify the oil or fat, it should be in the caustic state—the glycerine will be found in the mother liquor along with a portion of the alkali. To saturate the alkali, sulphuric acid should be added, as soon as the soap separates, and any excess of the sulphuric acid is then to be neutralized by a little carbonate of baryta. Next the liquid is to be filtered and evaporated to the consistence of syrup, and, after the addition of alcohol, it is to be filtered again. The alcohol dissolves the glycerine, leaving the sulphate of the alkali, and the sulphate of baryta as a deposit. This is the process as directed by Berzelius, but it is manifestly unfit to afford an article for the market. Tartaric acid may be taken here instead of the sulphuric acid, but alcohol is still requisite to separate the glycerine. For external application, the presence of a small quantitity of the oxide of lead, or of caustic alkali, will not often be an objection in cutaneous diseases, and if it were, the oxide of lead might be separated sufficiently by sulphuric acid; nor would the caustic alkali, after being changed to a sulphate by the same acid, act injuriously.

Glycerine consists of carbon, hydrogen, and oxygen with water, ($C^6$ $H^7$ $O^5$+HO)—and it has been regarded as a hydrated oxide, of a radical *glyceryl* ($C^6$ $H^7$) not yet separated. This oxide is further described, as a base analogous to the oxide of cetyl in spermaceti, and cerain in beeswax. This base, united with the fatty acids, constitutes oils and fats—thus margarine is pronounced to be the bimargarate of glycerine, stearine the bistearate of glycerine, oleine the binoleate of glycerine, butyrine the butyrate of glycerine, &c.*

## § IV.—*Inorganic Remedies.*

26. *Lactate of Iron.*—The following mode of preparing this salt has been recommended by Lepage.†

Dissolve 100 parts of lactate of lime in 500 parts of boiling water, and filter; then dissolve 68 parts of pure crystalline sulphate of iron in 500 parts of distilled water, and filter. Mix the two solutions in a flask, and slightly acidulate with lactic acid. The decomposition may be aided by a gentle heat, and when this is accomplished the liquor may be filtered to separate the sulphate of lime, and afterwards rapidly evaporated in an iron or porcelain vessel. If the latter be used, some iron filings must be added. When its bulk is reduced one half, it may be again filtered and allowed to crystallize. The mother liquor decanted and carefully evaporated will yield a fresh crop of crystals. The salt thus obtained is quite white, and its solution in distilled water is not affected either by nitrate of baryta or oxalate of ammonia.

Cassebaum‡ recommends its preparation in a direct manner. He pours twelve ounces of water over one ounce of milk sugar and the same quantity of iron filings, and digesting the liquid at a temperature of 86°, with a piece of the inner membrane of a pig's stomach of about the size of the hand.

27. *Iodide of Iron.—New Method of Making Proto-iodide of Iron, in a state of Purity. By M. Kop.*—It is known that the proto-iodide of iron, prepared in the usual way, cannot be obtained solid in a state of purity. The limpid and colourless solution first formed, acquires a portion of oxygen from the air, and a part of the iron is thus oxidized, while, at the same time, a portion of biniodide of iron is formed, so that the product consists of a mix-

* Notice of Glycerine. By William Seller, in Northern Journ. of Med. March, 1846.

† Chem. Gaz. No. 82. ‡ Archiv der Pharm. vol. xliv, p. 263.

ture of iodide and biniodide of iron with peroxide of iron. If this mixture be dissolved in water, the solution will be of a yellowish-red colour, more or less deep, according to the quantity of biniodide, or even of free iodine present; the solution will also be turbid on account of the peroxide of iron held in suspension.

The author recommends the following method of preparing pure iodide of iron:—Triturate four parts of iodine with two parts of water in a large dish; then add, at once, one part of iron filings in a state of fine division, and continue the trituration. In a few moments there will be manifested a considerable elevation of temperature, together with the disengagement of the vapour of iodine. Sometimes, especially if the temperature of the atmosphere be low, the heat developed from the mixture is insufficient to cause the disengagement of iodine vapour; but in this case, it is only necessary slightly to heat the mixture, immediately after the addition of the iron filings. The mixture is at first liquid, but it soon becomes solid.

There exists, in the proto-iodide of iron thus prepared, a small quantity of iron, which may be easily separated by a filter, when the salt is used in solution, and the filtered liquor will then be colourless, and free from any mixture of biniodide, or of free iodine.

This preparation may be easily administered in the form of pills, made with any proper excipient.*

The occasional effect of this medicine on the teeth is singular. Righini relates the case of a lady affected with a strumous affection, who was taking with advantage the proto-iodide of iron in the form of pills. After having gradually augmented the dose, she all at once perceived that her teeth, which were previously very white, had become quite blue. Alarmed at this result, she applied to the medical man, who soon assured her that the unexpected effect was purely accidental, arising from the liberation of a little iodine, which was exhaled in the state of vapour. The blue colour was immediately removed by using a solution of carbonate of soda.†

28. *Sulphate of Iron* prescribed in the following manner is highly recommended by Professor Lippich, as a remedy for excessive perspiration—

℞. Gray cinchona, 30 grammes, or nearly ℥j.
Water 300 „ ℥x.

Boil for eight on ten minutes, filter and add

Sulphate of iron, 40 centigrammes, or about gr. vi.
Simple syrup 30 grammes „ ℥j.

Mix, to form a drink, of which a half coffee-cupful is to be taken every two hours.

29. *Prevention of the Oxydation of Iron Filings, intended for pharmaceutical use. By M. Giovanni Righini.*—It is well known to pharmaceutists that it is very difficult to prevent the oxydation of iron filings; even inclosing them in stoppered bottles, perfectly fitted, is not sufficient. M. Righini has discovered that they may be preserved for any length of time, by reducing the filings to fine powder, and mixing them with an equal quantity of well-dried sugar. The mixture, which will be of a lead colour, may be kept in paper, provided it be preserved from moisture.‡

30. *Iodide of Potassium.*—The following process for obtaining this salt free from the presence of chloride of potassium or carbonate or iodate of potash has been prepared by Mohr.

Take sulphuret of barium prepared in the ordinary mode from 2 lb. of

* Schmidt's Jahrbucher and Journ. de Chimie Médicale. † Journal de Chimie Médicale. ‡ Ibid.

heavy spar, ℥v of powdered charcoal, and ℥j of colophony; powder, sift, and bottle it.

Mix ℥xvj of iodine in lb. vj or lb. vij of distilled water, and gradually add the powdered sulphuret of barium till the solution of iodine becomes colourless; taking care at the same time to stlr the mixture. Heat the solution to the boiling-point, and add ℥xj of sulphate of potash; boil for a quarter of an hour and filter. After washing the residue, evaporate the filtered solution so as to crystallize.

31. *Adulteration of Iodide of Potassium by means of the Bromide; the means of determining the amount of the latter in the Compound.** *By M. Personne.*—The adulteration of iodide of potassium by the bromide of the same base, being a known fact, it may be useful to publish the following process, by means of which we can not only ascertain the presence of these two products in the compound, but also determine the relative proportions of each.

When we treat a solution of iodide of potassium with sulphate of copper, we know that a proto-iodide of copper is immediately precipitated, and that consequently half the iodine of the iodide remains in solution, notwithstanding the excess of sulphate that has been added.

M. Duflos has shown that we can precipitate the whole of the iodine in the solution in the state of proto-iodide of copper, if we add an excess of sulphurous acid, which, acting in concert with the iodine, reduces the binoxide of copper to the state of protoxide, by itself passing into the state of sulphuric acid.

As the same reaction does not take place in the case of the chlorides, this method has been applied to the discovery of chloride of potassium in the iodide; it remained to be seen whether it could also be employed for the detection of bromide in the same salt, and M. Personne has satisfied himself by accurate experiment that it is equally correct as in the last case.

The operation is performed in the following manner. We dissolve the suspected iodide in a sufficient quantity of cold distilled water, we add an excess of sulphate of copper in solution, we then saturate the mixture with sulphuric acid; as soon as the latter is in excess, the whole of the iodine is precipitated in the state of proto-iodide of copper, while the bromide remains undecomposed; we separate the iodide of copper by filtration, and it may be weighed after being washed and dried. The water arising from the washing is to be added to the filtered liquid, a fresh quantity of sulphate of copper and sulphurous acid are added, and the mixture boiled; the whole of the bromide is then decomposed in its turn, and the bromine precipitated in the state of proto-bromide of copper, the quantity of which can be determined as in the first instance.

If we should be content with the determination of the presence of bromine in the compound, it is sufficient, after having separated the iodide of copper by filtration, to place the liquid in a tube, pour upon it a little ether and chlorated water, then shake it, and, if left at rest, the ether will rise to the surface, bringing with it the whole of the bromine, which tinges it of a reddish-yellow colour.

This method, by its simplicity and accuracy, is preferable to that which consists in converting the mixture into iodide and bromide of silver, which are afterwards separated by ammonia; for the latter process almost always gives incorrect results.

32. *Iodine, on the Adulteration of.*—Herberger observes that, in consequence of the high price of iodine, this substance is very frequently adulte-

* Journal de Pharmacie.

rated. Thus in one specimen he found radiated black sulphuret of antimony. Still more deceptive is the adulteration with artificial plumbago. This, however, is easily discovered by volatilizing the iodine at a low heat, and afterwards applying a strong degree of heat with admission of air. In one case he found 51 per cent. of plumbago.*

33. *On the Presence of Chloride of Lead in Commercial Muriatic Acid. By Dr. A. Vogel, jun.*—The usual impurities hitherto detected in muriatic acid are for the most part derived from the sulphuric acid, which is used for decomposing the common salt. They consist of sulphurous, sulphuric, and nitrous acids; chlorine and chlorides of arsenic, tin, iron, and even selenium.

Dr. Vogel found that a commercial muriatic acid contained none of the above-mentioned impurities, with the exception of slight traces of chlorine and iron, but that it always gave a black precipitate with sulphuretted hydrogen, which arose from the presence of a rather large portion of chloride of lead. When diluted with water, small crystals of chloride of lead were gradually formed; for this substance is more soluble in concentrated than in diluted acid. This presence of chloride of lead (which amounts to about one per cent. of the acid) is to be ascribed to the circumstance of the common salt having been decomposed and the acid distilled in leaden vessels, which are in use in several manufactories.†

34. *On the Action of Hydrocyanic Acid, the Cyanides, Alkaline Chlorides, Bromides and Iodides on Mercurial Compounds, especially on Calomel. By Dr. E. Riegel.*—This subject is one of so great importance that we publish the memoir with scarcely any abbreviation.

Several cases have recently occurred in which the contemporaneous internal use of the protochloride of mercury with water containing prussic acid has been accompanied by highly injurious consequences. The reason of this was owing to the prussic acid, and waters which contain it, decomposing the protochloride of mercury, and forming percyanide of mercury and hydrochloric acid, with separation of metallic mercury. Béranger recently found, after Scheele, and subsequently Soubeiran and Regimbeau had observed the decomposition of calomel by bitter almond water, that on mixing prussic acid with protochloride of mercury, percyanide of mercury was constantly found. By mixing 100 grs. of calomel with 25 oz. of cherry-laurel water, there were obtained, according to Béranger, 90 grs. undecomposed calomel, 5 grs. cyanide of mercury, and 5 grs. metallic mercury. Béranger has, however, not stated what became of the hydrochloric acid which was formed in his experiments, as this could not escape. According to Mialhe, on pouring an excess of prussic acid upon protochloride of mercury, there is formed, first percyanide of mercury, muriatic acid, and metallic mercury; as soon, however, as this reaction is over, muriatic acid and percyanide of mercury act so upon each other, that perchloride of mercury and hydrocyanic acid result; however, this decomposition is only partial. A little ammonia and formic acid occur as accessory products. Ether readily extracts the prussic acid and corrosive sublimate, and leaves undissolved the cyanide of mercury.

The behaviour of prussic acid towards the protiodide and protobromide of mercury, as well as to the protosalts of mercury, is quite analogous to that with calomel. Corrosive sublimate is likewise decomposed by prussic acid, a certain amount of cyanide of mercury is formed, and a corresponding quantity of hydrochloric acid. In some recent experiments with cherry-laurel water, Béranger observed, indeed, the formation of cyanide of mercury, but was unable to detect the formation of perchloride of mercury and hydrochloric acid,

* Jahrb. f. Prakt. Pharm. xi, p. 35. † Buchner's Repert., Bd. xxxvii, pp. 313-15.

as iodide of potassium produced no precipitate in the water digested with calomel. This phenomenon is explained from the fact that the calomel which is set free by the decomposition of the chloride combines, according to Béranger, entirely, or for the greater part, with the benzoyle, forming chloride of benzoyle. On evaporation of cherry-laurel water which has been digested with calomel, there is obtained, besides crystallized cyanide of mercury, a yellow oily fluid, soluble in water, but not in ether, of a strong odour of oil of bitter almonds and sharp burning taste; it becomes hard on drying, and resembles gum arabic. Mixed with pure lime, and exposed to red heat in a glass tube, decomposition occurs, dense suffocating vapours are given off, resembling those of benzoic acid, and the chlorine combines with the lime; accordingly the reaction of the cherry-laurel water should be distinguished from that of the pure prussic acid.

When, according to the author, 6 oz. of cherry-laurel water of the Prussian Pharmacopœia are poured over 1 oz. of calomel, immediate decomposition results, the formation of metallic mercury being directly perceptible. If the mixture is digested at the ordinary temperature for eight days, and the liquid filtered from the gray sediment, the solution exhibits no essential change with reference to its original odour; it possesses a metallic taste and faintly reddens blue litmus-paper. Hydrosulphate of ammonia produces in it a black precipitate, iodide of potassium a yellowish white one, which soon becomes dirty red, but finally assumes a beautiful scarlet-red, nitrate of silver a white precipitate insoluble in nitric acid; lime water and caustic potash produced no change. When the liquid is evaporated, it loses its original odour, and acquires one similar to that of balsam of Peru. A crystalline powder separates, and on the bottom of the vessel a yellowish oily substance.

When a mixture of calomel and cherry-laurel water in the above proportions is digested for five or six hours between 176° and 194°, being frequently agitated, the reaction appears to be far more energetic, the protochloride of mercury becomes black, and the filtered liquid possesses an insupportable metallic taste, strongly reddens blue litmus-paper, and no longer blackens calomel. It yields with hydrosulphate of ammonia an abundant black precipitate, with iodide of potassium a white one, which soon becomes yellowish, and finally scarlet, and with nitrate of silver a precipitate insoluble in nitric acid. A slip of copper immersed in it becomes immediately coated with a film of mercury. When the liquid is diluted, it is rendered turbid, and finally exhibits some yellow oily drops. On cooling, two distinct layers are perceptible, an upper aqueous one, and an under oily one of the colour of cinnamon oil. By evaporating the former a residue is obtained, consisting of percyanide of mercury, perchloride of mercury, chloride of ammonium, and benzoic acid, as well as some muriatic acid.

The above-mentioned oily substance possesses a yellow colour, great resemblance to the oil of cinnamon, and the odour of the hydruret of benzoyle; it boils at about 250°, when a colourless fluid of somewhat less specific gravity passes over, which solidifies on cooling, and is a combination of hydruret of benzoyle and perchloride of mercury. The unrectified fluid undergoes no apparent change in low temperatures; it dissolves in every proportion in ether, in 30 parts of water and 10 parts of alcohol; it was found impossible to deprive this body of the perchloride of mercury by treatment with water or chloride of sodium; but the whole of the corrosive sublimate may be removed by repeated mixing with a solution of chloride of ammonium, when the substance appears to become only somewhat specifically lighter. Hydrocyanic acid could not be detected in it by reagents.

This oily body is not formed when a solution of percyanide or perchloride of

mercury in cherry-laurel water is evaporated; it is, however, obtained when a corresponding quantity of hydrochloric acid is added to the solution of the percyanide. The presence of hydrochloric acid appears to cause the formation of this body, which is independent of the action of the cherry-laurel water upon calomel, for it is only produced upon evaporation, and at a certain concentration of the liquid. When, instead of evaporating this, it is saturated with chloride of sodium and treated with ether, the latter leaves on evaporation oil of bitter almonds, which contains some hydrochloric acid.

Prenteloup found that the chloride of benzoyle never assumes a solid state, at least at the ordinary temperature, and that it is rapidly decomposed on boiling with water. The dried mixture, which presents, according to Béranger, a gummy appearance, should be considered, according to Prenteloup, as an oxide, and consists of benzoic acid, traces of hydruret of benzoyle and perchloride of silver. This explains why a mixture from the evaporated residue, derived from the action of cherry-laurel water upon calomel, yields at a red heat with lime an odour similar to that of benzoic acid and chloride of calcium.

On treating calomel with dilute prussic acid, phenomena analogous to the above occurred, with the exception that no formation of the oily body resulted even on evaporation. Bromide and iodide of mercury behave precisely like calomel. The action of the alkaline chlorides upon the protochloride of mercury constitutes an exactly similar phenomenon. According to Mialhe, calomel in the presence of chloride of ammonium, potassium, or of sodium, and pure water, is converted partially into perchloride of mercury with separation of some pure metal; the protiodide of mercury likewise passes under the same circumstances into periodide. According to the experiments of Cattanel di Moma, calomel in contact with chloride of ammonium, or common salt, at 104°-118° undergoes no change; but, according to Abbene, corrosive sublimate is formed at 212° from calomel under the above circumstances. Larroque arrived at the same results from his experiments. The latter thinks that the protochloride of mercury cannot be converted into the perchloride without the separation of some metallic mercury. Mialhe attributes the formation of perchloride solely to its affinities to the alkaline proto-chlorides. The formation of the perchloride is less when the air is excluded than when this is not the case. The alkaline protochlorides form, in the presence of calomel and atmospheric air, three times as much corrosive sublimate as without the latter, since at the ordinary temperature calomel is capable of absorbing a certain quantity of air, as was shown by Guibourt; at a higher temperature the absorption is greater, and it is likewise hastened by the presence of the alkaline chloride. Each equivalent of peroxide of mercury formed by this absorption of oxygen yields, by double decomposition with the alkaline protochloride, 1 equiv. perchloride and 1 equiv. alkaline oxide. It is remarkable that the perchloride is not decomposed by the alkali; Mialhe explains this from the great affinity between the perchloride and the alkaline chlorides; at least magnesia precipitates corrosive sublimate alone, but not in combination with an alkaline protochloride; whence it follows that the alkaline solution of protochloride can decompose calomel into corrosive sublimate with excess of air, without the liberation of metallic mercury. According to this the chlorides of the alkalies convert the calomel in the cold partially into perchloride without separation of metallic mercury; but on the application of heat corrosive sublimate is formed and metallic mercury set free.

Since the perchloride of mercury does not occur in the above mixture alone, but in combination with the alkaline oxide, or as basic perchloride, ether, according to Mialhe, does not remove anything from it. Larroque, on the con-

trary, asserts that when a mixture of 1 part calomel, 1 of an alkaline protochloride and 42 parts water are kept boiling for some time, the perchloride can be detected in the filtered liquid by iodide of potassium, protochloride of tin and sulphuretted hydrogen; when chloride of ammonium is employed, the application of heat is not even necessary to give rise to the production of perchloride, which may be extracted by ether.

Selmi found that calomel in contact with animal albumen was partially converted into corrosive sublimate, not only when the reaction was alkaline, but even in the presence of some free acetic acid. If 4 grs. chloride of sodium are dissolved in 3 drms. albumen, and shaken for 15 minutes with 3 grs. of calomel, metallic mercury is formed, while 10 grs. of chloride of sodium, dissolved in 2 drms. of water, give no reaction with 3 grs. of calomel. Chloride of ammonium acts more powerfully under the same circumstances than chloride of sodium, about as 4 : 3. According to Grimelli, the albumen itself, from the sulphur it contains, acts on the calomel, on which account the albumen of eggs which have been sat on exhibits a stronger reaction than that of fresh eggs.

It results, from the experiments of the author, that when 1 part calomel is mixed with 2 parts of an alkaline chloride and 10 parts water at the ordinary temperature, no perceptible reaction occurs. After digestion for several days, the protochloride of mercury became somewhat gray, and most so when chloride of ammonium was employed. The quantity of perchloride of mercury remaining on evaporation was, however, very inconsiderable. On heating a mixture of an alkaline chloride with calomel and water, a dark gray colouring of the sediment immediately results, arising from the separation of metallic mercury, and the presence of perchloride of mercury may very readily be detected in the filtered liquid. On evaporating the liquid, and treating the residue with ether, the entire quantity of the perchloride formed is extracted. When calomel is shaken for 10 to 15 minutes with the chloride of an alkali and albumen, the separation of metallic mercury and formation of corrosive sublimate is immediately perceptible.

The alkaline bromides and iodides have likewise a decomposing action on calomel; it is entirely decomposed by an excess of alkaline proto-iodide, especially on the application of heat; the mixture becomes gray, yellowish-red, melts and becomes brownish-black; metallic mercury and periodide of mercury sublime in consequence of the decomposition of the proto-iodide in the presence of alkaline proto-iodides. The residue is whitish, entirely soluble in water, and consists of alkaline protochloride and alkaline proto-iodide. The alkaline and other soluble proto-iodides, as those of ammonium, magnesium, iron and zinc, decompose calomel, which at the moment of contact assumes a grayish-green colour, which on trituration of the mass becomes dark green. Under the influence of light, the mixture acquires a yellowish, and finally red colour; at the same time globules of metallic mercury are observed, proto-iodide of mercury and alkaline protochloride being formed. On treating the proto-iodide or protobromide of mercury with a chloride of the alkalies in the presence of water, no apparent change of the protobromide or proto-iodide appeared to occur at the ordinary temperature; but if the mixture is exposed to the temperature of 212°, some periodide or perbromide is dissolved in the liquid.*

* Journ. für Prakt. Pharm. x, p. 8, as translated in the Chem. Gaz. No. 75.

## § V.—*Miscellanea.*

35. *On the Action of certain External Remedies.*—M. Lemaitre has recently communicated a memoir on this subject to the Academy of Sciences. He first inquires whether chemical agents act on the solids or the fluids, and from a series of experiments he concludes that it is the albumen of the blood that plays the chief part both in internal and external diseases; that it alone becomes organized for the formation of cicatrices and for all the transformations of the tissues; and that from its decomposition pus is formed.

It is on the albumen that acids, alkalies, and salts, with a metallic base act. It is by liquefying or coagulating it that we affect the cure of most diseases, and arrest or prevent putrefaction on ulcerated surfaces. M. Lemaitre considers the nitrate of lead to be endowed with signal power in disinfecting ulcers. This property it shares with other salts—indeed, all those which precipitate albumen, such as the nitrate of silver, of mercury, of zinc, of iron, the salts of alum, and acetates of lead enjoy it also; but the nitrate of lead possesses the advantage of decomposing the chlorides and the sulphates, and of precipitating the albumen without irritating the ulcer. Moreover, it can be employed in either the solid or liquid state.

36. *Adhesive Plaster.**—The following composition is said neither to crack nor to inflame the skin. Diachylon plaster 4·00 grains, purified resin 50 grains, Venetian turpentine 38 grains; mix at a gentle heat and add, gum mastich 12 grains, gum ammoniac 12 grains, and spread on linen. In winter it is advisable to add 10 grains more turpentine, and 12 grains of almond oil.

37. *Ammoniacal Ointment a substitute for Blistering Plaster.*—The ammoniacal ointment, when properly prepared, causes vesication in about ten minutes. This rapidity of action renders it preferable to the other preparations used for producing vesication, which seldom act until after the lapse of several hours. Care should be taken that the ointment is properly prepared, or its operation will be slow and imperfect. The formula for its preparation recommended by M. Goudret, the inventor, may be seen supra, p. 201, art. 65. The common cause of the ointment failing is, that the mixture of lard and oil is over-heated. If the lard is too liquid or too warm when the ammonia is added, a portion of this is rapidly lost by evaporation; and the strength of the compound is impaired. When well prepared and kept in a cool place, in a well-closed bottle, the ointment will preserve its vesicating properties for more than a month.†

* Journ für Prakt. Chemie. † Journ. de Pharmacie, Janvier, 1846.

# VIII.

## REPORT ON PUBLIC HEALTH.

BY WILLIAM A. GUY, M.B. CANTAB.

Professor of Forensic Medicine, King's College, and Physician to King's College Hospital, &c. &c.

No one who has watched the course of events during the last few years can fail to have seen the growing interest and importance which attaches to the subject of the public health. The Sanatory Reports of 1838 and 1839; Mr. Chadwick's valuable 'Report on the Sanatory Condition of the Labouring Population of Great Britain,' published in 1842; the supplementary Report, on 'Interment in Towns,' issued in the following year; the appointment of a Commission for Inquiring into the State of Large Towns and Populous Districts; the publication of their voluminous and valuable Reports, of which the first appeared in 1844; the introduction of the subject of public health into the speech from the throne at the opening of the session of 1845; and the preparation of an act of parliament for the improvement of towns (the Towns' Drainage Bill); to which may be added the formation of Health of Towns Associations in the metropolis and chief provincial towns, and of commercial companies for carrying into practical effect the valuable suggestions of the Health of Towns' Commission—all these events are evidently but the forerunners of a system of medical police, which shall add a new study to the medical curriculum, and a new practical pursuit to the duties of the medical practitioner. The time is, therefore, fast approaching when an abstract of the medical sciences will be held incomplete which does not comprise some notice of the progress of the public health. Indeed, it may well admit of question whether that time has not already arrived; and it will probably be held to be the safer course to anticipate rather than to supply the want which must inevitably soon be felt of a periodical survey of the state and progress of the public health. It is accordingly proposed to commence the second year of the 'Abstract' with an account of the most recent sanatory publication of any size or pretension—the Reports of the Commission for Inquiring into the State of Large Towns and Populous Districts. When this shall have been completed, the half-yearly report will assume the form of an abstract of the current publications on Hygiéne.

The Commission was appointed to inquire into the existing state of large towns and populous districts in England and Wales, with reference to the causes of diseases among the inhabitants; the best means of promoting and securing the public health, under the operation of the laws and regulations now in force, and the usages at present prevailing with regard to the drainage of lands; the erection, drainage, and ventilation of buildings; and the supply of water in such towns and districts, whether for purposes of health, or for the better protection of property from fire; and how far the public

health and condition of the poorer classes of the people, and the salubrity and safety of their dwellings may be promoted by the amendment of such laws, regulations, and usages.

In carrying these objects into effect, the commission examined a large number of medical men, both in the metropolis and in the provinces, instituted special inquiries in the chief provincial towns by members of the commission, and called to their assistance several members of other professions, whose official situations or professional avocations supplied them with the desired information. These inquiries led the commission to the conclusion "that defective drainage, neglect of house and street cleansing, ventilation, and imperfect supplies of water, contribute to produce atmospheric impurities, which affect the general health and physical condition of the population, generating acute, chronic, and ultimately organic disease, especially scrofulous affections and consumption, in addition to the fevers and other forms of disease, to which public attention has hitherto been chiefly directed by previous sanatory inquiries." These causes of disease were shown to be in full operation in most of our large towns; for, to take the supply of water as a measure of their sanatory condition, it appears that out of fifty towns to which questions were addressed, and which were visited by members of the commission, there were only six in which the arrangements and supplies could be deemed, in any comprehensive sense, good; while in thirteen they were indifferent, and in thirty-one so deficient as to be pronounced bad, and frequently inferior in purity. The other conclusions at which the commission arrived will be noticed in their proper place. It is proposed at present to give such a brief abstract of the evidence as may suffice to indicate the more important contents of the voluminous publications of the commission. Where the evidence has rather a general than a medical interest, a short reference to the subject matter of that evidence is all that the narrow limits of this work will permit. The folio edition of the 'Reports' is that which it is proposed to employ, as it contains much valuable evidence necessarily omitted from the octavo publication of the commission.

The first witness examined by the commission was Dr. Thomas Clarke, Professor of Chemistry in Marischal College, Aberdeen. His evidence referred to the important object of a supply of pure water to towns. The water at present supplied is, with few exceptions, hard water, and for that reason, unfit for general use, as it entails great wear and tear in clothes, and an extravagant outlay for soap; it also contains animal and vegetable impurities, and animalcules, and is often so offensive as to lead to its disuse as a beverage, thus indirectly encouraging the use of spirituous liquors. Dr. Clarke proposes to remove the hardness and, at the same time, a large proportion of the animal and vegetable impurities, by adding lime water in such quantity as to convert the existing bicarbonate of lime into the carbonate, or common chalk, which is thrown down in combination with a certain proportion of colouring matter and animal and vegetable impurities. The estimated expense of this process is about one per cent. on the charge for water, which trifling addition would be replaced many times by the saving in soap. This simple and efficacious plan has been in vain submitted to the London Water Companies. Dr. Clarke's evidence occupies seventeen pages (from p. 1 to p. 17).

Dr. Clarke's evidence on the best method of purifying water is succeeded by Mr. Robert Thom's description of the mechanical means which have been employed under his direction at Greenock, Paisley, and Ayr, for securing to the inhabitants a constant and abundant supply of filtered water at high pressure, for all the important purposes to which water can be applied. The cost of

supplying a family of five persons, on Mr. Thom's plan, is, at Campbelltown, about 1s. 4d. per annum; at Ayr, 2s. 2d.; at Paisley, 2s. 9d.; at Greenock, 2s. 6d. Minute descriptions, illustrated by plans, are given of the machinery employed, and the mode of constructing the filters. The witness is clearly of opinion that "no town ought to be considered fully supplied with water unless the pipes are kept constantly full, and arrangements made by which a powerful force of water can be taken from them at a moment's notice, to extinguish fire in any part of the town." But he intimates that this will be found impracticable without the assistance of government and the legislature, an opinion in which all persons who have any experience of water companies will readily coincide (pp. 17-22).

The next witness examined by the commission was Mr. Cubitt, the eminent and experienced builder. The points upon which he insisted most strongly were, the necessity of building streets of such a width as to admit the access of a cart; of having the entrance of all streets open to the sky; of furnishing every house with a privy or water-closet; of surrounding it with an area, and furnishing the basement with windows; of making provisions for the frequent and complete removal of refuse, for ample supplies of water, for ventilation by means of flues, and for building the houses of a sufficient height. The suppression of the smoke nuisance, and the removal of unwholesome manufactories were also strongly insisted on, as was the necessity of appointing a well-paid and thoroughly independent public officer, whose duty it should be to take measures for putting these nuisances down. The injury to trade, arising from the rapid deterioration of costly furniture, by the sooty atmosphere of London, is put prominently forward as strongly reinforcing the argument drawn from the injury to the public health. The importance of providing an accessible means of instruction by drawings and models of improved structural arrangements is strongly put forward, in the belief that good and economical plans would be soon adopted by architects and builders. The application of the refuse of towns to agricultural purposes is spoken of with some hesitation, on the ground of the difficulty of devising an economical and effective plan, but the removal of the discharge of the sewers to a lower point in the river is forcibly urged. Throughout his evidence Mr. Cubitt evinces an anxiety to prevent too great an interference with the builder, believing that facilities for domestic and personal cleanliness will soon generate improved habits. The effect of the building act, in driving builders beyond the limits, where they put up the most obnoxious houses, in very low, damp, and filthy situations, is very strongly represented. The improved style of building of the inferior class of tenements adopted by Mr. Cubitt himself, and the very general introduction of water-closets into almost all his houses, are points in which Mr. Cubitt deserves to meet with approval and imitation. The evidence contains an estimate, by Mr. Howell, of the cost of a complete house-drainage over and above that of the present cesspool, with its incomplete and objectionable accompaniments. The sum is 10*l.* 8s. 6d.

W. Hosking, Esq., Professor of Architecture, in King's College, was the next witness examined, and insisted on the thorough ventilation, cleansing, and drainage of the streets inhabited by the poor, and that the width of the streets should be at least equal to the height of the houses. In the case of inhabited cellars, the floor should be boarded, and more than six inches above the area pavement so as to allow a thorough draught under the floor. Ventilation should be secured by open fire-places, sweet-air flues, and, in all cases, an access of external air, independent of the crevices in the doors and windows. On the subject of sewerage the witness has some valuable suggestions.

The egg-shape, a system of flushing, ventilating shafts for discharging the foul air, and a cheap form of water-closet, are among the subjects touched upon. Some suggestions are also made tending to cheapen the construction of houses for the poor, and the system of separate houses is advocated in preference to any plan, however economical, of accommodating a number of families under the same roof. It is suggested that district surveyors should undergo some examination before their appointment, and there are also some proposals for the effectual suppression of nuisances.

Mr. John Brooks, formerly a stocking-weaver, stated in evidence many circumstances highly favorable to the working classes of Leicestershire, especially their great regard for the Sabbath, their anxiety to avail themselves of better houses, of the benefits of the allotment system, and of the advantages of benefit societies. The injurious effect on the health of long hours of work in close and confined rooms, and the improvement effected by the out-door labour in the cultivation of their allotments, were especially pointed out.

James Savage, Esq., an architect, was the next witnessed examined, but his evidence did not extend much beyond an approval of the leading clauses of the building act.

The evidence of the next witness, J. C. London, Esq., refers chiefly to the building of dwellings for the poor. He is of opinion that their houses should be built in quadrangles, with a central stair, with an ample supply of hot and cold water, gas for light or cooking, water-closets, and mechanical arrangements for saving labour in raising coal and lowering ashes. The houses to be heated by warm air, and ventilated by grated openings near the ceilings, connected with flues close to the chimneys. A common washing-room, drying-room, and bakehouse, and even a common school, and a porter to superintend all the internal arrangements, complete the establishment. The cost of each house is estimated at 40*l.* Some cheap forms of water-closets, illustrated by engravings, are also given. The objections advanced against living in common are answered by stating that, to a certain extent, the system already prevails, but under every disadvantage. The working classes are stated to be rapidly improving, and some gratifying illustrations of their social progress are given.

Henry Austin, Esq., an architect, the next witness examined, confirmed in most points the opinions of former witnesses as to the necessity of a certain width of street, of every street being a thoroughfare, well paved and drained, furnished with a cheap water-closet, and a good supply of water. The mischief which would arise from a communication with the sewers, unaccompanied by such a supply of water, is strongly insisted on. The total expense of a cheap water-closet, on a plan proposed by Mr. Austin, over and above that of a common privy, would be more than defrayed by the saving in the expense of emptying the cesspool, which is estimated at 1*l.* a year. The economy of the water-closet may be understood from a statement of the witness that the first expense attending it would be defrayed in three years. Cesspools are very strongly and justly condemned. The necessity of providing an area around cellars used as dwellings, together with an open fire-place and a window, as enacted in the building act, was admitted. The appointment of an inspector of nuisances is advocated, as a measure indispensable for their suppression. The suppression of the smoke-nuisance is also urged on the most conclusive of all grounds—that the interference would be a decided pecuniary advantage to the manufacturers. The total amount of fuel which escapes as smoke is estimated at 30 per cent.; and the witness stated that Mr. Chanter undertakes to make the requisite alterations in furnaces on receiving as his remuneration the fuel saved in four years. Much might be effected towards the suppression of this

nuisanee by increased eare and attention on the part of the stokers. A series of questions and answers will be found to embody the following deseription of the districts about Rosemary lane and Cable street, the district over which the Blackwall Railway passes. It is the resort of the poorest and worst population of London; many of the courts are without thoroughfares, entered by a small low narrow arch, unpaved, and full of holes, containing putrid matter and water, without even surfaee drainage, no water laid on in the houses, no scavenging. These places are densely peopled, crowded with children, "as squalid and wretched a class of beings as can possibly be found." There is often more than one family in an ill-ventilated room, the windows of which are nearly blocked up, and such as open are very small. The provisions for ventilation insisted on by the witness are in all cases a window and a flue. Mr. Austin's evidence concludes by insisting that some guarantee should be afforded to the public that the parties intrusted with the performance of the duties of district surveyors should be competent to the discharge of those duties.

We now come to a very important mass of evidence, extending over eighteen folio pages, for which the profession and the public are indebted to Dr. Southwood Smith, for many years physician to the London Fever Hospital, and to the Eastern Dispensary, and well known for the earnestness with which he has always advocated sanatory measures. Many of the facts stated in his evidence are of the most striking and even startling character, and are deserving of the most serious consideration. Some of them had been previously made public in the fourth Report of the Poor-law Commissioners, and are here repeated as having been confirmed by increased experience. The following passages are among the most remarkable. They refer to the prevalence of fever, and its connexion with defective cleansing and drainage. "The records of the London Fever Hospital prove indubitably that there are certain localities in the metropolis and its vicinity which are the constant seats of fever, from which this disease is never absent, though it may prevail less extensively, and be less severe in some years, and even in some seasons of the same year, than in others, but still in which it is incessantly committing its ravages." "The commissioners may form some judgment of the extent to which it has recently prevailed from the fact that, in the four months from the commencement of January in the present year (1844) to the end of April, we have actually received into the wards of the Fever Hospital 500 fever patients; and during a considerable portion of that time, for days together, we have refused application for admission at the rate of thirty or forty a day, in consequence of not having room. Now the remarkable fact is, that those cases come to us from certain districts which are as familiar to us as our own names." "In former years I have found, on my personal examination, some localities in which there was not a single house in which fever had not prevailed, and in some cases not a single room in a single house in which there had not been fever." The following passages embody the strong opinion of Dr. Southwood Smith as to the cause of fever. "In every district in which fever returns frequently, and prevails extensively, there is unformly bad sewerage, a bad supply of water, a bad supply of scavengers, and a consequent accumulation of filth; and I have observed this to be so uniformly and generally the case, that I have been accustomed to express the fact in this way. If you trace down the fever districts on a map, and then compare that map with the map of the Commissioners of Sewers, you will find that wherever the Commissioners of Sewers have not been, there fever is prevalent, and, on the contrary, wherever they have been, there fever is comparatively absent." "It appears that the streets, courts, alleys, and houses in which fever first breaks out, and in which it becomes most pre-

valent and fatal, are invariably those in the immediate neighbourhood of unsound sewers, stagnant ditches and ponds, gutters always full of putrefying matter, nightmen's yards, and privies, the soil of which is openly exposed, and is seldom or never removed." These statements are enforced by descriptions of some of the worst of the districts referred to.

Dr. Southwood Smith speaks not less confidently as to the efficacy of cleansing, draining, and improvements in building in removing the fevers and other diseases to which the humbler classes in these populous districts are subject; and he states it as his opinion, "that if proper attention were paid to sanatory measures, the mortality of these districts would be most materially diminished, perhaps in some places one third, and in others even one half." "The poorer classes, in these neglected localities and dwellings, are exposed to causes of disease and death which are peculiar to them; the operation of these peculiar causes is steady, unceasing, sure; and the result is the same as if twenty or thirty thousand of these people were annually taken out of their wretched dwellings and put to death, the actual fact being that they are allowed to remain in them and die. I am now speaking of what silently, but surely, takes place every year in the metropolis alone, and do not include in this estimate the numbers that perish from these causes in the other great cities, and in the towns and villages of the kingdom." It has been stated that "the annual slaughter in England and Wales, from preventible causes, of typhus fever, which attacks persons in the vigour of life, is double the amount of what was suffered by the allied armies in the battle of Waterloo." This is no exaggerated statement; this great battle against our people is every year fought and won; and yet few take account of it, partly for the very reason that it takes place every year.

These statements are obviously intended to convey the deep and sincere conviction of their author as to the extent of the evil they are deploring, and are, therefore, naturally overcharged; for it is in the highest degree improbable that the victims of fever and of the filth with which it is so generally associated, should amount, or even approach, to the number of 20,000 or 30,000 a year. If we compare the average mortality of the metropolis for the years 1840, 1841, and 1842 with that which it would reach if the deaths, instead of being 1 in 39, were only 1 in 50, we find that the annual excess above the healthy standard is little more than 8·400; and it is not likely that under the best sanatory arrangements a more favorable rate of mortality could be secured.

The calculation of the relative mortality of fever is evidently more precise. The proportion of deaths to recoveries in the London Fever Hospital, to which the worst cases are sent, is, on an average of ten years, 1 in 7, and in some years not more than 1 in 10 or 12. For ordinary years the mortality for the whole kingdom is estimated at less than 1 in 12.

That fever is one of the most common causes of pauperism is proved by the returns made, in 1838, by twenty metropolitan unions to the Poor-law Commissioners. "From these returns it appears, that of the total number who received parochial relief in most of the districts, a very large proportion received it in consequence of their being ill with fever; but in one district, namely, St. George's, Southwark, out of 1467 persons who received parochial relief, 1276, that is, the whole number, with the exception of 191, are reported to have been ill with fever."

Again. "By the returns from the Bethnal Green and Whitechapel unions, it appears that the extra expense for fever cases for the quarter ending Lady-day, 1838. is to the Bethnal Green union, 216*l.* 19*s.*; to the Whitechapel union 400*l.*; altogether 616*l.* 19*s.*. Thus, at the rate of the last quarter,

there will be incurred, during the present year, for the relief of fever cases in these two parishes alone, the sum of 2467*l.* 16*s.*"

One consideration which greatly enhances the importance of the foregoing remarks on the prevalence of fever is the period of life at which it occurs. It is peculiarly the disease of adolescence and manhood, as will appear from the following statement. Out of 2537 persons attacked by fever and admitted into the Fever Hospital in the four years 1825-1828, 429 were under 20 years of age, 1188 between 20 and 30, 531 between 30 and 40, and 389 between 40 and 80; so that the number of attacks between 20 and 30 nearly equals the number at all other ages put together, the number between 20 and 30 being 1188, and at all other ages 1349. The number of females attacked was 1308, and of males 1229.

The mortality from fever at different ages is shown in a table calculated by Mr. Finlaison, from nearly 6000 deaths, occurring in the Fever Hospital during ten years preceding January, 1834.

Out of 100,000 persons attacked with fever,

| | | |
|---|---|---|
| between 5 | and 16 | there would die 8266 |
| 15 | 26 | 11,494 |
| 25 | 36 | 17,071 |
| 35 | 46 | 21,960 |
| 45 | 56 | 30,493 |
| 55 | 66 | 40,708 |
| 65 and upwards | | 44,643 |

The evidence on the subject of fever is not yet exhausted, and the following quotations have, for the medical man, a practical value. "The fever which prevails everywhere in the metropolis now, is totally different from that which I was accustomed to see for a long series of years, it is as different in its symptoms, and requires as opposite remedies as any two diseases in the catalogue of nosology." "Formerly there was scarcely a day in which it was not necessary to take blood from some of the patients in the hospital; the inflammatory nature of the disease was the obvious and prevailing one, and bloodletting was indispensable to stop the progress of active inflammation in some vital organ. Now no case presents itself with any indication of active inflammation, and bloodletting is practised in the hospital scarcely four or five times in the year. Formerly wine, brandy, ammonia, anything in the shape of stimulus, was found to aggravate the disease, and was never prescribed excepting in cases attended with unusual prostration, or in the last stage of the malady. Now, the prostration is from the first so urgent that there is no case which requires any treatment at all that does not stand in need of stimulants."

After all that has been said it is scarcely necessary to add that Dr. Southwood Smith considers, "the immediate and direct cause of fever to be a poison generated by the decomposition of animal and vegetable matters;" which poison can only be removed by an efficient sewerage and ventilation.

With regard to the first of these remedies, sewerage, the leading desiderata are stated to be a semicircular form of the bottom of the sewer, a proper fall, and an ample supply of water, and a system of flushing, practised so successfully, by Mr. Roe, in the Finsbury and Holborn divisions. When sewers are allowed to become mere reservoirs, offensive and dangerous gases are produced; hence the number of fever cases occurring in houses opposite gulley-holes, as attested by the witness and confirmed by the experience of other medical men.

To the neglect of sewerage, ventilation, and cleanliness, to which fever

owes its existence, Dr. Southwood Smith also traces debility, indigestion, pneumonia, and phthisis, a high mortality among children, diminished constitutional vigour among parents, entailing as a necessary consequence destitution, dependence, pauperism, and an indifference more painful to witness than actual suffering; to which may be added an excessive use of spirituous liquors and opium. In illustration of the extent to which opium is given to young children, some striking and painfully interesting facts are cited from the evidence of Dr. Mitchell and Mr. Grainger before the Children's Employment Commission.

The moral effect of these physical evils is not forgotten. "The wretched state of his home is one of the most powerful causes which induces a man to spend his money on strictly selfish gratifications: he comes home tired and exhausted, he wants quiet, he needs refreshment: filth, squalor, discomfort in every shape are around him; he naturally gets away from it if he can." And this is the practical school in which the effect of the verbal teaching of the day-school is counteracted and destroyed.

As closely connected with cleansing and sewerage and the consequent improvement of the dwellings of the poor, Dr. Southwood Smith insists on the value of the refuse of towns as manure; regards the proposed application of this valuable material to agricultural purposes as fraught with benefits to town and country; and states, "that the very refuse of the materials which have served as food and clothing to the inhabitants of the crowded city, and which, if allowed to accumulate there, invariably and inevitably taint the air, and render it pestilential, promptly removed and spread out on the surface of the surrounding country, not only give it healthfulness but clothe it with verdure, and endue it with inexhaustible fertility."

The following additional observations on this subject will repay perusal:—"It has been shown that two thirds of the annual expense of street cleansing is the expense of cartage, which a proper adaptation of the sewers would render wholly unnecessary: the refuse of the streets might be removed in the same way as the refuse of houses, namely, through pipes by means of water. This is proved to be the most rapid, cheap, and convenient mode of removing the refuse from houses; in like manner the refuse of streets might be swept at once into the sewers and discharged by water. Experienced engineers state that, whenever the levels are not convenient, or whenever it is desirable to send the refuse over heights for distribution, the contents of the sewers may be lifted by steam power, just as water is lifted in the drainage of the fens; and it might be sent for distribution wherever it is required for use in iron pipes, in the same manner as water is conveyed into towns by the water companies. The estimated expense of this mode of cleansing and removal is about the same as that of conveying water into towns; that is, not a tithe of the expense of cartage. I was struck with the following application of this principle. A contract was about to be entered into by the West Middlesex Water Company, for hauling out from their reservoir, at Kensington, the deposit of eight or ten years' silt, which had accumulated to the depth of three or four feet. The contractor offered to remove this quantity, which covered nearly an acre of surface, for the sum of 400*l.* in three or four weeks. The reservoir was emptied in order to be inspected by the engineer and directors before the contract was accepted. It occurred to one of the officers that the cleansing might be accomplished more readily by merely stirring up the silt to mix it with the water, and then, if a cut or outlet were made in the main pipe used for conveying the water to London, that it might be washed out. He, accordingly, got thirty or forty

men to work in stirring up the deposit, and accomplished the work at the cost of 40*l.* or 50*l.*, and three or four days' labour, instead of so many weeks. When the directors went to see the basin to decide upon the contract, the reservoir was as free from any deposit as a house floor. Since the discovery thus made, the silt has been regularly cleansed out into the common sewers. It is to be observed, in respect to the relative cheapness of the two modes, that the contractor would only have removed the silt to the nearest convenient place of deposit in the immediate vicinity of the reservoir; whereas, in the fluid state, it might be carried at the actual cost of conveying water, as far as it is at present conveyed, and sold with a profit, twelve or fourteen miles, and raised to heights of 150 feet, at 2½d. per ton. This fact is highly important, for everything which serves to show the power and economy of water-conveyance, tends to hasten the advent of a complete system of house, street, and town drainage, and of that which is, if possible, still more important, the application of the valuable refuse of towns to the purposes of agriculture.

On the subject of legislative interference with the building of dwelling-houses, with a view to their sanatory condition, it is very justly urged that such interference has precedent in its favour, as legal provisions are already made for securing a sufficient degree of strength, and for guarding against the risk of fire. A striking fact illustrative of the negligence of landlords; observations on the defective cleansing of the streets occupied by the poor, and on the inevitable effect of want of cleanliness on the moral habits of the population; the paramount importance of securing to every house a proper supply of water, and a privy screened from view (the water-closet is elsewhere shown to be cheaper), will be found at pp. 80 and 81; and the reader is referred to p. 82 for some very striking statements as to the existing condition of the streets occupied by the poorer classes, and as to the overcrowding of rooms, with the demoralising effects attendant upon that barbarous custom.

On the present neglect of ventilation, the evils which it entails, and the saving which might be effected by its universal adoption in houses and workshops, some valuable observations will be found at pp. 83 and 84. The following abstract of a passage quoted from a former Report is too striking to be omitted. A tailor's workshop is the subject of the description, but it will apply with little variation to the printing-office and other places of work.

Eighty men, working together in a room sixteen or eighteen yards long, and seven or eight yards wide, close together, knee to knee; the room, in summer time, what with the heat of the men, the heat of the irons, and the heat of the candles together, 20 or 30 degrees higher than the heat outside; the heat and closeness such, that tailors from the country faint away in the shop, and visitors complain of the heat and smell as intolerable; the men sitting as loosely as possible, the perspiration streaming from them. In winter these foul places are still more unhealthy, as the heat from the stoves and candles, and the closeness, is much greater. Cold currents of air streaming in at every crevice; perpetual squabbling about opening windows; the old hands, from long habit inured to the heat, conspiring to stifle the new comers; in the very coldest nights, the rooms so hot, that large thick tallow candles (quarter of a pound candles) have melted and fallen over from the heat; the young hands unable to work full time; the old hands losing appetite, thirst taking the place of hunger, and gin of food. Intemperance in this, as in many other instances, a sort of necessity, and not merely a depraved appetite for a destructive poison.

There is a benevolent institution for the relief of aged and infirm tailors, to which the annual subscriptions of the masters amount to 800*l.* and those of the

journeymen to 525*l.*, making a sum of 1325*l.*, which is distributed in the relief of sickness and the infirmities of old age. Of this, a small fraction may be presumed to be contributed by the masters of these men, and this is the only advantage which can be set off against a fearful sacrifice of health and life, and a not inconsiderable waste of money by injury to the work.

The remainder of Dr. Southwood Smith's evidence is devoted to the consideration of the propriety of providing a competent and skilful direction and supervision of sanitary measures, and an inspection of the localities which are the seats of excessive sickness and mortality. It is proposed that the inspectors should be selected from the higher class of medical men, whose duty it should be, to verify the fact of death, to give such advice as may conduce to the decent and proper disposal of the corpse, to give information to the authorities of any existing causes of sickness and mortality, to place obstacles in the way of the criminal disposal of the dead body, or the concealment of crime, and to improve the registration of the causes of death.

In conclusion, the witness expresses his conviction, derived from much observation and some experience, "that the most general and distressing of the evils of which we have been speaking, are capable of being gradually removed and of being almost wholly prevented in future." "No government can prevent the existence of poverty; no benevolence can reach the evils of extreme poverty under the circumstances which at present universally accompany it; but there is ground of hope, and encouragement in the thought that the most painful and debasing of those circumstances are adventitious, and form no necessary and inevitable part of the condition of that large class of every community which must earn their daily bread by their manual labour.

"Those adventitious circumstances constitute the hardest part of the lot of the poor, and these, as I have just said, are capable of being prevented to a very large extent. The labours of a single individual, I mean those of the illustrious Howard, have at length succeeded in removing exactly similar evils, though somewhat more concentrated and intense, from our prisons; they are at least equally capable of being removed from the dwelling-houses and work-places of the people. Here there is a field of beneficent labour which falls legitimately within the scope of the legislator, and which is equally within that of the philanthropist, affording a common ground beyond the arena of party strife, in the culture of which all parties may unite with the absolute certainty that they cannot thus labour without producing some good result, and that the good produced, whatever may be its amount, must be unmixed good."

The next witness examined was Mr. Nathaniel Bagshaw Ward, well known as the inventor of Ward's cases. He insists very strongly on the favorable influence of light, which he illustrates by a case related by the late Baron Dupuytren (?); an observation made by Sir James Wylie in an extensive barrack at St. Petersburg; and the well-known experiments of Dr. Edwards on the tadpole. He does not support his opinion by any detailed fact of his own observing, or by statistics, but he expresses himself in the strongest terms as to the beneficial agency of light in promoting cleanliness and preserving health. He also insists on the importance of communicating the measles to healthy children at a favorable season of the year, by exposure to the contagion of the disease. The use of the case, as a means of preserving plants in the most crowded localities, and thus fostering a taste for flowers among the poor, is very properly recommended.

Mr. William Dyce Guthrie was next examined, and insisted on a more complete system of house-drainage, by the substitution of small glazed earthenware tubes, from 3 to 6 inches in diameter for the larger and more costly

pipes and drains now in use; this improved drainage to be accompanied by the formation of cisterns for catching the rain-water, where water is not laid on by companies, so that the house-drains may be completely and effectually flushed. Diagrams, illustrating all the improved arrangements suggested by the witness, are appended to the evidence. Among other important suggestions, Mr. Guthrie lays it down as an axiom, "that in the metropolis, cesspools ought, under no circumstances, to be tolerated, as sources of unnecessary expense and of disease, much less ought they to be propagated by any legal enactments; neither should privies be permitted which have not a supply of water." It is also suggested, in reference to gulley-holes, that they should be made straight, that their number should be greatly diminished, that instead of communicating directly with the sewer, several of them should be united, and that the drain which unites them should communicate in one situation only with the sewer. Cheap valves ought to be placed on all the side drains, and the expense of these, it is satisfactory to find, would be more than covered by the sale of the old iron of unnecessary gratings. A hinge-valve is recommended in preference to any form of water-valve. Tubular collateral drains of glazed earthenware, from 12 to 16 inches in diameter, intermediate between the house-drains and the main sewer, are also strongly recommended. For sewer-ventilation, many small tubes rising from the crown of the sewers to the height of the chimneys of the houses are recommended. In answer to the question, "Have you known any cases of actual illness by retrograde currents into tenements from house-drains?" the witness answers "Yes; in a particular part of the district in Sidmouth-street, there were three servants in one house who were taken ill with fever and removed, and five of the family of children were also seized, and one died, as I apprehend, of that cause. In Gray's-inn-road another family had fever, but of a more mild form; that was more remote from this particular concentrated spot; but, by and by, the same family that had the measles here, removed into the very house where this system of sewerage exists, and three children were immediately seized with scarlatina, and one died."

This important subject of tubular drainage has lately been very strongly enforced by Mr. James Simpson, of Edinburgh, in a letter addressed to the editor of the 'Scotsman,' and dated December 19, 1845. He states that he has been bold enough to fill up the large conduit under his house and the cesspool, and to substitute a cast iron pipe of the small diameter of $2\frac{1}{2}$ inches. A larger pipe, as he justly states, would have defeated his purpose, because no head of water at his command could have cleansed it by *full* flushing and hydraulic pressure. The $2\frac{1}{2}$ inch pipes have been proved by experiment fully equal to the important function they have to discharge.

Among the incidental advantages of the system of glazed tubes is the little hold given to rats, which it appears may be much more readily destroyed by a good system of flushing than by traps, cats, or poison. The following fact is instructive. In the town of Montrose, ten or twelve years ago, "a violent thunderstorm occurred, accompanied by an extraordinary fall of rain; the water from the immediate neighbourhood, and from the roofs of the houses, so rapidly accumulated as to completely gorge the sewers, which had a mortal effect on the rats in the interior; thousands, to the extent of cart-loads even, were destroyed by that one grand natural flush."

Mr. James Braidwood, the able superintendent of the London Fire-brigade, was the next witness examined. The most important part of his evidence in its bearing upon the public health, is the scanty supply of water in certain districts of the metropolis. The south side of the river is particularly unfor-

tunate in this respect; for it appears that, while on the north side there were only nine in 1529 fires in which the water was not ready, or the supply short, there was a late or deficient supply in 107 out of 459 fires occurring on the south side of the river. This may be taken as a sufficient indication of a deficient supply for purposes closely connected with the health of the population.

Mr. Hugh Biers, who has for several years been engaged in the sewerage of the north-western district of the metropolis, was next examined, and insisted strongly on the evil of the present expensive system of sewerage, especially as regards the smaller description of houses. This arises, in a great degree from the commissioners of sewers insisting on the construction of a part of the drain connected with each house, which naturally leads to increased expense and very inconvenient delays. Another cause of increased expense is the unnecessarily large size of house-drains. The necessity of ventilation in the houses of the poor is another point adverted to by the witness, who recommends air-gratings underneath the floors, and apertures in the ceilings of the staircase. The impediment to ventilation offered by the window-tax is very justly complained of. In conclusion, Mr. Biers states "that there are four primary objects to be kept in view in legislating for the comfort and accommodation especially of the humbler classes of the community, namely, cheapness in the construction of their dwellings, and the several appendages necessary to make a working-man's home comfortable; a plentiful supply of water at a cheap rate; a sufficient sewerage and drainage at a reasonable cost; and the promotion of ventilation. These, if properly carried out, would be of most essential service to the poor. It may be taken as an axiom, that if you make a working-man's home comfortable, he will give up the public-house and its ruinous consequences; and that when a working-man's home is little better than a pigstye, that man will almost always be an inhabitant of the public-house or beer-shop. I say this confidently from my experience of the habits of large numbers of the working-classes."

Mr. James Beck, Surveyor to the Tower Hamlet District of Sewers, admitted, though he thought the statement somewhat overcharged, that in a direct line from Virginia-row to Shoreditch, a mile in extent, all the lanes, courts, and alleys in the neighbourhood, pour their contents into the centre of the main street, where they stagnate and putrify; and he adduced facts to show that, even where sewers have been laid down, they are of little use beyond effecting a surface drainage. "In Rosemary-lane we have put in a sewer 1500 feet in length, and there have been but ten communications. We have put in a sewer in Globe-lane, where many complaints were made, and I should say there have not been thirty communications made in the 6000 feet of that sewer." Among other particulars stated in evidence it appears that in the absence of a system of flushing, the cost of cleansing the sewers is from 500*l.* to 600*l.* a year. Of this expense, however, a small part only is occasioned by sewers of a recent construction, with semicircular bottoms. Another fact of some importance in its bearing on the contemplated use of iron pipes for conveying sewerage-water for the purposes of agriculture, is the absence of corrosion in iron valves which have been in use for many years. The leading practical suggestion contained in the evidence of this witness is that the sewer-rates should be levied annually instead of every two or three years.

The chief facts elicited by the examination of the next witness, Mr. John Newman, Surveyor of the Eastern District of the Surrey and Kent Commissioners of Sewers, were the absence of power to oblige the owners of houses

to communicate with the sewers, and to prevent them from making cesspools below the level of the sewers, and the existence of a considerable length of open sewers and ditches in his district. In reference to this last circumstance, the witness corrects a common error, namely, that the open sewer is more offensive and more injurious to health than the covered sewer. Any one who has examined the sewers for himself will be surprised at the absence of odour from the flowing sewer water, or even from the stagnant water. The odour, when it exists, arises chiefly from the solid deposits which are exposed on the banks of the sewer. The covered sewer, unless all the openings from it are well trapped, is a contrivance for distributing offensive and poisonous gases into streets and houses. It requires to be well constructed, of a form and inclination to favour the flow of water, and to be well flushed; otherwise a covered sewer is worse than an open ditch.

# BOOKS RECEIVED.

1. On Febrile Caloricity. By Dr. Dowler. pp. 24.
2. On the Nature and Treatment of Cancer. By Dr. Walshe.
3. Practical Treatise on Abdominal Hernia. By T. P. Teale, F.L.S.
4. System of Practical Surgery. By W. Fergusson, F.R.S.E.
5. On Scarlatina and its successful Treatment. By Isaac Brown, Esq.
6. Scrofula, its Nature, &c. By B. Phillips, F.R.S.
7. Manual of Jurisprudence. 2d Edit.
8. Manual of Physiology. By Dr. Carpenter.
9. Medical Notes on China. By Dr. Wilson.
10. Structure and Functions of the Female Breast. By E. W. Tuson, F.R.S. pp. 485.
11. Practical Surgery. By Robert Liston, F.R.S. &c. 4th Edit.
12. Practice of Surgery. By James Miller, F.R.S.
13. Introduction to Quantitative Analysis, &c. By George Fownes, F.R.S.
14. Disorders of the Cerebral Circulation. By George Burrows, M.D. pp. 220.
15. On the size of the Red Corpuscles in the Vertebrata, with Measurements. By George Gulliver, F.R.S.
16. Treatment of Fractures by Splints of a new construction. By Robert Kerr. 2d Memoir. Reprint.
17. Human Female Ovary with reference to the Corpora Lutea. By F. Renaud, M.D.
18. On Tubercle of the Brain in Children. By T. M. Adams, F.R.C.S.E. pp. 32.
19. Physiology of the Nerves of the Uterus. By Joseph Swann. pp. 32.
20. Case of Ovarian Dropsy, &c. By Drs. Bennett and Handyside. Reprint. pp. 50.
21. Statistics of the Royal Infirmary of Glasgow. By Dr. Orr. Reprint. pp. 28.
22. The Medical Police of the United Kingdom. Reprint. pp. 36.
23. Practical Observations on Inspissated Oxgall. By Dr. Clay. pp. 14.
24. Ligature of both Carotid Arteries for a remarkable Erectile Tumour. By J. Mason Warren, M.D. New York.
25. Lectures on the Urine, &c. By Dr. Aldridge. pp. 80.
26. Instruction in Chemical Analysis (Quantitative). Edited by Lloyd Bullwell. pp. 625.
27. Ditto (Qualitative). 2d Edit. pp. 353.
28. Practical Observations on Mineral Waters. By Edwin Lee, Esq. pp. 42.

## IN EXCHANGE.

Dublin Quarterly Journal, Feb. May.
American Journal of the Medical Sciences, Oct. 1845, Jan. 1846.
Northern Journal of Medicine, Jan., Feb., March, April, May, June.
Medical Times, from January.
Chemist, Jan., Feb., March, April, May, 1846.

# INDEX TO VOL. III.


PAGE

Abdomen, injuries and diseases of . . . . 218
Abdominal tenderness in enteritis, Dr. GRIFFIN on . . 61
Abortion produced by stimulating injections . . . 341
Abscess, pelvic, Mr. JOSEPH BELL on . . . 274
Adhesive plaster, formula for . . . . 382
Ague, Dr. GRAVES on the relapse periods of . . . 169
treatment of, by Dr. CHAMBERS . . . ib.
nitrate of potash in . . . ib.
Air, warm, Dr. BIRD on the therapeutic value of . . 73
ALDRIDGE, Dr., on a nephritic complication in typhus . . 168
on the treatment of diabetes . . . 193
ALEXANDER, Mr., successful case of hydatid abscess of the liver by . 187
ALISON, Dr. SCOTT, on arthritis in paralytic patients . . 193
ALLEN, Dr., on sanguinaria canadensis in croup . . 180
Amenorrhœa, Dr. KASTNER on the bark of prunus lauro-cerasus in . 156
Amputation of the limbs in utero . . . . 159
observations on by Dr. HANNAY . . . 242
at the ankle-joint . . . . 243
of the leg, Dr. LAWRIE'S remarks on . . ib.
Anæmia, observations on, by M. TROUSSEAU . . . 33
Dr. TURNBULL . . . 36
Anchylosis of the knee-joint, treatment of by a new operation 95, 235
Aneurism, treatment of by galvano-puncture . . . 125
cases of internal, unaccompanied by bruit or pulsation . 185
Dr. BELLINGHAM on the cure of by compression . 210
cases of ditto by Mr. DARTNELL, Mr. STORKS, Mr. SALTER, and Mr. LUKE . . . . 211
treatment of by compression, unsuccessful case of, by Mr. HARRISON . . . . 213
cure of by ligature, cases by Mr. KIRBY . . ib.
Anus, Mr. SCALLAN on a peculiar ulcer of . . . 86
Aorta, Dr. BELLINGHAM on the signs of aneurism of . . 38
contraction of to occlusion, case by Professor TIEDEMANN . 132
dissecting aneurism of, case by Dr. THOMPSON . . 185
Aphonia, Mr. BISHOP on the pathology and treatment of . . 26
hysterical, nitrate of silver in . . . 147
Apoplexy, case of in a child, by Mr. WORTHINGTON . . 159
Mr. COPEMAN on the value of bleeding in . . 178
pulmonary, Dr. PATERSON on . . . 180
Arachnoid, Mr. RAINEY on the nerves of . . . 293

PAGE

Arsenic, rules for the administration of in skin diseases . . 76
symptoms of poisoning by . . . . 329
elimination of from the system, M. Bonjean on . . ib.
tests for by M. Lassaigne . . . . 330
Arteries, M. Fleury on the treatment of wounds of by compression, &c. 121
diseases of . . . . . 202
Arteritis, Professor Tiedemann on . . . . 207
Artery, posterior tibial, ligature of . . . . 213
axillary, new operation for ligature of . . . ib.
Arthritis in paralytic limbs, Dr. Scott Alison on . . 193
Ashwell, Dr., on the contra-indications to amputation of the cervix uteri . . . . . 143
Asphyxia, Dr. Snow's experiments on . . . . 345
Asthma, Grinder's, Dr. Favell on . . . . 182
spasmodic, Rayer's treatment of . . . 183
Auscultation, M. Lanza on . . . . . 179
Barbour, Dr., on the iodide of potassium in hydrocephalus . 25
medical treatment of dyspepsia . . 49
on the therapeutic value of iodine . . 199
Barker, Dr., cases of aneurism of the aorta without bruit or pulsation . . . . . 185
Bebeerine . . . . . 355
Beck, Mr., on the nerves of the uterus . . . 297
Bell, Mr. Joseph, on pelvic abscess . . . . 274
Belladonna, poisoning with, cases . . . . 337
use of in strangulated hernia . . . 220
Bellinger, Dr., remarks by on venesection . . . 214
Bellingham, Dr. O. B., on the signs of aneurism of the aorta . 38
cure of aneurism by compression . 210
Bennett, Dr. J. Hughes, on the diagnosis of ovarian tumours, 145, 246
on a case of ovariotomy . . 249
Benson, Dr., on the treatment of diabetes . . 193
Benzoic acid, preparation of . . . . 369
Bernard, M., on the digestive powers of the stomach . . 286
influence of the par vagum on digestion . 287
memoir by on differences in the digestion in carnivora and herbivora . . . . 315
Bibra, analysis of muscle by . . . . 323
Bidder, Dr., on the minute anatomy of the kidneys . . 290
Bile, healthy, researches on . . . . . 313
fœtal, analysis of . . . . . 314
composition of in typhus fever . . . . 315
in diseases of the liver . . . . ib.
in scrofulosis . . . . . ib.
in tuberculosis . . . . . ib.
Binaghi, Dr., on spontaneous gangrene . . . 83
Bird, Dr. Golding, on the therapeutic influence of warm moist air . 73
Bishop, Mr., on the pathology and treatment of aphonia . . 26
Bladder, Volkmann on the muscular action of . . . 291
Blistering ointment, Dr. Goudret's . . . . 201
Blood, of the Echidna, Mr. Owen on . . . . 281
of molluscs, &c., M. Lebert on . . . ib.
organizability of proved . . . . 282

PAGE
Blood, menstrual . . . . . ib.
LUDWIG on the extractive matters of . . . 303
MAGNUS on the gaseous contents of . . . 305
healthy, analysis of . . . . . ib.
diseased, analysis of by POPP . . . . 306
analysis of in cyanosis . . . . 310
in purpura . . . . ib.
in scrofula . . . . ib.
depuration of . . . . . 311
detection of pus in . . . . . ib.
Blood-stains, detection of . . . . . 347
Bones, Mr. TOMES on the ultimate structure of . . . 279
Mr. QUEKETT on the corpuscles of . . . 280
Mr. PAULL on hereditary brittleness of . . . 87
BONJEAN. M., on the elimination of arsenic from the system . 329
BOUCHARDAT, M., on diabetes . . . . 193
BRADSHAW, Dr., on cod-liver oil in rheumatism . . 200
Brain, on softening of from obstructed circulation . . 177
hemispheres of, RETZIUS on their development . . 292
BREE, Mr., case by of medullary sarcoma of the prostate in a child . 162
BRETONNEAU, M., on the abortive treatment of tonsillitis . 180
BROCKMANN, Dr., on pulmonary melanosis . . . 30
BRODIE, Sir B., on abscess of the tibia . . . 91
inflammation of the synovial membranes . 227
abscess of the knee-joint . . . 230
chronic gouty affections of the synovial membranes 231
gonorrhœal inflammation of the synovial membranes ib.
ulceration of the cartilages . . . 232
scrofulous disease of the joints . . 233
BROWNBILL, Mr., case by of calculus in the female, with a hair-pin for the nucleus . . . . . 220
BROWNE, Mr. T., on acetic acid in scarlatina . . . 170
BROWN, Mr., on the treatment of ovarian cysts by pressure and mercurials . . . . . 247
BUCK, Dr., new operation by for anchylosis . . . 95
BUECK, analysis of the vernix caseosa by . . . 323
BUNYON, Dr., case by, of chylous urine . . . 190
BURGESS, Dr., on the "delphinium staphysagre" in scabies . 197
BYRNE, Dr., on large doses of quinine in intermittent and remittent fevers . . . . . 168
Cæsarean section, fatal cases of, by Mr. LYON . . . 153
cases of . . . . . 258
Calculus between the urethra and vagina, case of by Dr. SYME . 134
with a hair-pin for a nucleus, case . . . 220
urinary, analysis of, rules for . . . 323
Cancer, Dr. WALSHE on, work noticed . . . 172
of the stomach, Dr. WALSHE on . . . 50
of the dura mater, case by Mr. HERAPATH . . 178
Carotid artery, ligature of both vessels by Dr. ELLIS . . 127
effects of obliteration of, on the cerebral circulation . 177
CARTE, M., on the metamorphoses of the vitellus . . 296
Cerebral hemispheres, RETZIUS on the . . . . 292
CHAMBERT, M., analysis by, of healthy urine . . . 319

PAGE

Chapman, Dr., formula by for the cure of dropsy . . 76
on the effects of tobacco . . . 338
Chaissaignac, M., on discharge from the ear in fracture of the temporal bone . . . . . 77
Cherry, Mr., experiments by, on poisoning with hydrocyanic acid . 335
Chevers, Dr., on the effects of obliteration of the carotid arteries upon the cerebral circulation . . . . 177
Chick, Mr. Tod on the development of . . . 296
Children, stillborn, resuscitation of . . . . 158
Chomel, M., on the character of the sputa in measles . . 170
Chorea, Dr. Favell on its connexion with endocarditis . . 178
Chyle, Weber on the absorption of . . . . 289
Chylous urine, case of by Dr. Bunyon . . . 190
Ciliary movement, Purkinje and Ludwig on . . . 281
Circulation, Dr. Draper on the forces concerned in . . 282
Clay, Dr., on oxgall . . . . . 200
Colborne, Mr., on a case of bony tumour on a nerve . . 82
case of dislocation of the spine by . . 131
Coles, Mr., on the diagnosis of lateral curvature of the spine . 80
Conolly, Dr., on the treatment of acute mania . . . 13
Constipation from inertia of the bowels . . . 58
Dr. Chevers on sulphate of zinc in large doses in . 188
Corpus callosum, case of absence of the . . . 291
Corrigan, Dr., on typhus fever . . . . 1
on "firing" in lumbago, &c. . . . 199
on the connexion between famine and fever . 166
Corrosive sublimate, poisoning by . . . . 331
Corry, Dr., case by, of extraction of the placenta before the child . 268
Coryza, M. Tessier on the abortive treatment of . . 179
Crampton, Sir Philip, on the comparative merits of lithotomy and lithotrity . . . . . 220
Croup, a complication of scarlatina . . . . 170
Dr. Allen on the sanguinaria canadensis in . . 180
Cunningham, Dr. Alexander, case by, of superfœtation . 256
Cyanosis, case of by Dr. Spitta . . . . 183
Dampier, Mr., case of poisoning by oil of bitter almonds . 336
Daniell, Mr., on impulsive insanity . . . . 343
Darby, Dr., cases of epidemic meningitis by . . . 175
Dartnell, Mr., case by, of aneurism cured by compression . 211
Davallon, M., on aqueous extracts . . . 352
Death, sudden, during labour, case of . . . . 264
by lightning, case of . . . . 345
hanging—recovery . . . . ib.
De Borsa, Dr., on belladonna in strangulated hernia . . 220
Delavacherie, M., case of œsophagotomy by . . . 215
Delirium tremens, Dr. C. J. B. Williams on . . . 21
treatment of by Dr. Macgregor . . 22
Mr. Prankerd on croton-oil in . . 176
Devergie, M., on a new form of eczema . . . 196
Diabetes, fatal cases of, by Dr. Percy . . . 190
ditto by Dr. Benson . . . . ib.
M. Bouchardat on . . . . 191
treatment of by Dr. Benson and Dr. Aldridge . 193

PAGE
Dieffenbach, operation by, for prolapsus uteri . . 253
Digestion, influence of the par vagum on . . 287
Digitaline . . . . . 355
Digitalis, means of ascertaining the efficacy of . . 370
Dislocation, Dr. Jervis's apparatus in . . . 238
Dorrington, Mr., on galvanism in uterine hemorrhage . 149, 269
Draper, Professor, on the forces concerned in the circulation . 282
Dropsical accumulation, formulæ for . . . . 76
Dropsy, with albuminous urine, Dr. Todd on . . . 62
treatment of, by Dr. Alex. Wood . 67
after scarlet fever, Dr. O. Ferral on . . . 72
extra peritoneal, case of by Dr. Scott . . . 187
Drugs, effects of the sun upon . . . . 352
Ducros, M., on the application of quinine to the fauces, &c. . 364
on the application of sulphuric ether to ditto . . 372
Duke, Dr., Towcester, case by, of pregnancy, occurring with menstruation during lactation . . . . 256
Duncombe, Dr., on the incubation of scarlatina . . 170
Dunglison, Dr., clinical observations by, on jaundice . . 55
Durrant, Dr., on gangrene of the lung . . . 181
Dyspepsia, medical treatment of, by Dr. Barbour . . 49
Eager, Mr., on a case of rupture of an ovarian cyst . . 148
Ear, discharge from the, in fracture of the temporal bone . . 77
Eccles, Mr., case by, of ovarian dropsy cured by mercurials, &c. . 247
Eczema, M. Devergie on a new form of . . . 196
of the hands, Mr. Erichsen, on . . . ib.
general, M. Trousseau on mercurial baths in . . 197
Eichholtz on the nature of "Morbus Brightii" . . . 189
Ellis, Dr., on the ligature of both carotid arteries, case . . 127
Enteritis, Dr. Griffin on bloodletting in the treatment of . 187
Epidemics of fever . . . . . 167
Epilepsy, Dr. C. J. B. Williams on . . . . 22
Erichsen, Mr., on the treatment of eczema of the hands . . 196
Extracts, aqueous, preparation of . . . . 352
Fat, Persoz on the formation of . . . . 316
Favell, Dr., on the connexion of chorea and endocarditis . 178
on grinders' asthma . . . . 182
Fenwick, Mr., case of tubercuious disease of the heart, by . 184
Fergusson, Mr., opinions of, on œsophagotomy . . . 215
Fever, typhus, nephritic complication in, by Dr. Aldridge . 168
analysis of the bile in . . . . 315
Dr. Corrigan on . . . . 1
miasmatic, Dr. Upshur on . . . . 5
Dr. Van Buren on large doses ofquinine in . 9
and famine, connexion between, Dr. Corrigan on . . 166
yellow, in the Eclair, disputed . . . 168
Mr. Birtwhistle on . . . . ib.
remittent and intermittent, large doses of quinine in . ib.
Fistula, vesico-vaginal, remarks on, by Dr. Lever . . 226
Fleury, M., on the treatment of wounds of the arteries of the upper extremity . . . . . 121
Fœtation, extra-uterine, cases of, by Dr. Davis and Dr. M'Culloch . 257
multi-case of, by Dr. Merriman . . . ib.
Forbes, Mr. David, rules by, for the analysis of urinary calculi . 323

PAGE
Fractures of the fœtus during labour . . . . 159
Dr. Jervis's apparatus, in . . . . 235
Frerich, analysis of fœtal bile, by . . . . 314
Frontal sinus, extirpation of a polypus from . . . 129
Fry, Mr., case of poisoning by sulphuric acid, by . . 328
on variations in the symptoms of arsenical poisoning . 329
case of poisoning by nux vomica . . . 338
Galvanism, employment of, in uterine hemorrhage, by Mr. Dorrington 149, 272
case by Dr. Johnson 273
case by Dr. Wilson . ib.
in lumbago, rheumatism, &c. . . 198
Galvano-puncture, Mr. Petrequin on the treatment of aneurisms, by 125
Gangrene, spontaneous, Dr. Binaghi on . . . 83
of the hand and forearm, case by Professor Tiedemann . 90
senile, by ditto . . . . . 209
Garrod, Dr., on animal charcoal as an antidote . . 340
Gibert, M., on the diagnosis of scabies . . . 197
Glover, Dr., case of sialorrhœa, by . . . . 186
Glycerin, Mr. Startin on . . . . 373
Gobley, M., chemical researches by, on the yolk of eggs . . 316
Goudret, M., ointment, by . . . . . 201
Graves, Dr., on the relapse periods of ague . . . 169
Gray, Dr., on poisoning with belladonna . . . 337
Gregson, Mr., on extirpation of the uterus, case . . 148
Grenish, Mr., on infusions . . . . 351
Griffin, Dr., on the value of abdominal tenderness, as a sign of enteritis . . . . . 61
on the modus operandi of opium in hemorrhage . 75
on bloodletting in the treatment of enteritis . 187
Guersent, M., on the influence of rachitis in the fractures of children 157
Hall, Dr., ligature of the posterior tibial artery, by . . 213
Hamerjnk, Dr., on tubercular meningitis . . . 160
Hamilton, Dr., on West Indian remedies . . . 365
Hannay, Dr., observations on amputation . . . 245
Hare-lip, case . . . . . 159
Harrison, Mr., case by, of unsuccessful treatment of aneurism by compression . . . . . 213
Harting, Professor, on the growth of muscular tissue . . 279
Harvey, Mr., suggestions by, for checking uterine hemorrhage . 271
Hasse, Dr., on acute tuberculosis of the lungs . . 32
on purulent absorption . . . . 166
cases by, of softening of the brain from obstructed circulation . . . . . 177
Hemorrhage, post partum, anatomical source of, by Prof. Simpson . 137
Heart, case of tubercular disease of . . . . 184
polypiform, concretions of . . . . ib.
partial aneurism of, case, by Dr. Peacock . . 185
hypertrophy of, in children . . . . 274
Weber, on the peculiarities of the action of . . 282
irritability of, continuing after death . . . 283
Heller, analysis by, of the urine in delirium tremens . . 321
of the urine in coxalgia . . . ib.
on the detection of pus in the blood . . 311
Herapath, Dr., case of cancer of the dura mater . . 178

PAGE
HERAPATH, Dr., case by, of poisoning by corrosive sublimate . 331
Hernia, umbilical, treatment of . . . . 158
notice of Mr. TEALE'S work on . . . 218
strangulated, belladonna in . . . . 220
HODSON, Mr. case by, of polypiform concretions in the heart . 184
HORACZECK, Dr., on fatty degeneration of the liver . . 53
HORNER, Professor, on the sudoriferous glands in the axilla . . 280
HUGHES, Dr., paracentesis thoracis . . . 29, 181
HUNT, Mr., on the exhibition of arsenic in skin diseases . . 76
Hydrocephalus acutus, iodide of potassium in, by Dr. BARBOUR . 25
Hydrocyanic acid, action of substances containing, on calomel . 372
Infanticide . . . . . 341
Infusions . . . . . 351
Intestinal obstruction, cases by Drs. HOCKEN, CAMPBELL, &c. . 187
Insanity, impulsive, Mr. DANIELL on . . . . 343
Iodide of potassium, mode of obtaining pure . . 376
adulteration of, with the bromide . . 377
Iodine, HERBERGER on the adulteration of . . 377
Iodine,, Dr. BARBOUR, on . . . . . 199
Iris, VOLKMANN on the movements of . . . . 295
flaccidity of, a sign of death . . . . ib.
Iron, lactate of, preparation of . . . . 375
iodide of, new formula for . . . . ib.
singular effects of, on the teeth . . . ib.
Iron-filings, means of preventing oxidation of . . . 376
JERVIS, Dr., on the treatment of fractures by a new apparatus . 235
Jaundice, clinical observations on, by Dr. DUNGLISON . . 55
JOHNSON, Dr. GEORGE, on the nature of "Morbus Brightii" . 188
Shrewsbury, successful application by, of galvanism in uterine hemorrhage . . . . 273
Joints, Sir B. BRODIE on the diseases of . . . 226
knee, abscess of . . . . . 230
anchylosis of . . . . . 235
chronic gouty affection of the . . . . 231
knee, gonorrhœal inflammation of . . . ib.
primary ulceration of the cartilages of the . . 232
scrofulous disease of . . . 233
KASTNER, Dr., on the bark of prunus lauro-cerasus in amenorrhœa . 156
KELLY, Dr., on a local application in ulcers . . . 201
KENNEDY, Dr., on croup, as a complication of scarlatina . . 170
Kidneys, Dr. BIDDER on the minute anatomy of . . 290
KOLLIKER on ditto . . . . ib.
Kino . . . . . 365
KIRBY, Mr., case of aneurism by, cured by ligature . . 213
KIRKPATRICK, Dr., case of ovarian dropsy by . . . 251
Knee-joint, treatment of anchylosis of, by a new operation . . 95
Labium, encysted tumours of, by Professor SYME . . . 87
Lactucarium . . . . . 357
LANZA, M., on auscultation . . . . . 179
Lead chloride of, presence of in muriatic acid . . . 378
LEBERT, M., on purulent absorption . . . . 166
Legitimacy . . . . . 342
LEMAITRE, M., on the action of certain external remedies . 382

PAGE

LETHEBY, Dr., on poisoning by nitrate of potash . . 328
on poisoning by lead . . . . 332
LEVER, Dr., on vesico-vaginal fistula . . . . 226
on tumours obstructing delivery . . . 262
cases of placenta presentation by . . . 265
Lithotomy compared with lithotrity . . . . 220
Liver, Dr. HORACZECK on fatty degeneration of . . . 53
removal of a portion of, case by Dr. M'PHERSON . . 135
hydatids of, cure . . . . . 187
Professor THIRLE on the structure of . . . 287
Lower jaw, rigid contraction of, successively treated, by Mr. TAMPLIN 123
LAKE, Mr., case of aneurism cured by compression . . 212
Lungs, Dr. HASSE on acute tuberculosis of . . . 32
inhalation of creosote in gangrene of, by Dr. DURRANT . 181
Lymphatics, absorption of narcotic substances by . . 289
Lymphatic hearts, observations on, by VOLKMANN . . ib.
LYON, Mr., Cæsarean section by . . . . 155
case of tumour obstructing delivery . . . 260
M'GREGOR, Dr., on the treatment of delirium tremens . . 22
M'PHERSON, Dr., case of removal of a portion of the liver in the human subject . . . . . 135
Magnetic electricity, Dr. NELIGAN on . . . . 74
Magnetism, REICHENBACH'S new researches on . . . 298
Mania, acute, Dr. CONOLLY on . . . . 13
Manna, analysis of . . . . . 356
Measles, M. CHOMEL on the distinctive characters of the sputa in . 170
Medicines, analysis of . . . . . 354
impurities of various . . . . 356
Meloe, chemical examination of the various species of . . 373
Meningitis, epidemic, cases by Dr. DARBY . . . 175
MERREM, Dr., on the nature of the cicatrix of the uterus after rupture 146
MERRIMAN, Dr., case of multifœtation by . . . 257
Miasmata . . . . . 169
Midwifery, Hindu, mortality of . . . . 245
Morbus Brightii, Dr. JOHNSON'S theory of the nature of . . 188
theory of, by EICHHOLTZ . . . ib.
susceptibility of patients to mercurial action . 189
Morphia, salts of . . . . . 360
Mother, influence of imagination of, upon the child . . 144
Muscular contraction, WEBER on . . . . 277
VOLKMANN on the different forms of . . ib.
on involuntary . . 279
tissue, growth of the . . . . ib.
analysis of . . . . 323
system, varieties in . . . . ib.
Musk-pods, detection of falsifications in . . . 356
Myrrh, analysis of . . . . . 355
impurities of . . . . 356
means of distinguishing, from bdellium . . . 370
Narcotina, estimation of, in hill opium . . . 359
NELIGAN, Dr., on magnetic electricity . . . . 74
on spurious musk-pods . . . 356
Nerve, neuralgia from a bony tumour of . . . 82

PAGE
Nitrate of potash, poisoning by . . . . 328
silver, in hysterical aphonia . . . 147
Nutrition, M. Gobley on . . . . . 316
comparative measure of nitrogen in substances affording . 317
articles of, comparative table . . . . 318
Nux vomica, poisoning by . . . . . 338
Œsophagotomy, opinions of Fergusson, &c., on . . 215
case of, by M. Delavacherie . . . ib.
by Mr. Watson . . 216
O. Ferrall, Dr., on dropsy after scarlet fever . . . 72
Opium, modus operandi of, in hemorrhage . . . 75
poisoning by . . . . . 333
hill, Dr. Sutherland on . . . . 357
analysis of . . . . . 358
Ophthalmia, post febrile . . . . . 167
Orfila, experiment by, on infanticide . . . . 341
Osiander, Professor, on a cause of sterility . . . 253
Ovarian cyst, rupture of, cure . . . . 148
diagnosis of, by Dr. J. H. Bennett . . 145
diseases and their treatment, by ditto . . 246
dropsy recovery from, after suppuration of the cyst . . ib
treatment of, by pressure and mercurials . . 247
Ovariotomy, case of, by Drs. Bennett and Handyside . . 249
suggestions for a substitute for, by Dr. Carson . 251
Ovum, expulsion of, entire, at the full period, cases . 140, 257
Oxalis crassicaulis . . . . . 364
Oxgall, Dr. Clay on . . . . . 200
Pagan, Dr., on retention of a portion of the placenta in the fallopian tube . . . . . 141
Paget, Mr., case of absence of the corpus callosum . . 291
Pappenheim on the vitreous humour . . . . 294
Paracentesis thoracis, Dr. Hughes on . . . 29, 181
in acute pleurisy . . . . 181
Parchappe, M., on polypiform concretions of the heart . . 184
Patterson, Dr., on a remarkable case of pulmonary apoplexy . 180
Paton, Dr., on the functions of the spinal cord . . . 292
Paull, Dr., on hereditary brittleness of bones . . . 87
Peacock, Dr. on partial aneurism of the heart . . . 185
Pericarditis, Dr. Taylor on . . . . . 185
Personal identity . . . . . 340
Personne, M., on the preparation of tinctures . . . 350
Petrequin, M., on the treatment of aneurism by galvano-puncture . 125
Phillips, Mr., on scrofula . . . . . 193
Pills, method of covering with gelatin . . . . 354
Placenta, implantation of, in the fallopian tube . . . 141
presentation of, cases by Dr. Lever . . . 265
intra-uterine perforation of, case . . . 143
extraction of, before the child, successful cases, by Messrs. Wells, Hardinge, Corry, Tweed, and Goddard 268
Mr. Dorrington's opinions on . . . 269
Plague, report on . . . . . 171
Plattner, researches by on healthy bile . . . 313
Pneumonia, M. Remak on the sputa in . . . 180

PAGE

Pneumonia, treatment of by tinct. cantharides . . . 180
Poisoning, by sulphuric acid, case . . . . 328
nitrate of potash . . . . ib.
arsenic, variability of the symptoms of . . 329
corrosive sublimate, case by Mr. Herapath . 331
Poisoning, by lead in small doses . . . . 332
opium . . . . . 333
hydrocyanic acid, smallest fatal dose . . 334
oil of bitter almonds . . . . 336
Pollenden, Dr. on a new sign of pregnancy . . . 144
Prankerd, Mr. on croton oil in delirium tremens . . 276
Pregnancy, vaginal, case of . . . . 141
new sign . . . . . 144
occurrence of during lactation . . . 256
duration of . . . . . 342
protraction of, case . . . . ib.
Pretty, Mr., apparatus by, for checking uterine hemorrhage . 270
Puchelt, M., on venosity of the blood . . . 165
Public health, report on . . . . 383
Pulmonary melanosis, Dr. Brockmann . . . 30
Dr. M'Kellar on . . . 181
Pulse slow, case of . . . . . 183
Purulent absorption . . . . . 165
Quekett, Mr. on the corpuscles of bones . . . 280
Quinine, report on, in miasmatic fevers . . . 9
Quinine, application of, to the fauces and velum palati . . 364
tendency of, to induce abortion . . . ib.
arseniate of, formula for the . . . ib.
Quinoidine . . . . . 360
Rachitis, influence on the fractures of children . . 157
Rainey, Mr. on the origin of tubercle . . . 174
on the nerves of the arachnoid . . . 293
Rayer, M. on a new method of treating the asthmatic paroxysm . 103
Rayner, Dr. on purulent absorption . . . 165
Redtenbacher, analysis of taurin, by . . . 314
Remak, M. on pneumonic sputa . . . . 180
Remedies, action of certain external . . 382
Remedies, West Indian, Dr. Hamilton on . . . 365
Report on public health . . . . 383
Respiration, chemistry of . . . . 302
Retzius on the cerebral hemispheres . . . 292
Rheumatism, galvanism in . . . . 198
Dr. Corrigan on "firing" in . . . ib.
cod-liver oil in . . . . 200
Rippault on flaccidity of the iris as a sign of death . . 295
Rigby, Dr. on the duration of pregnancy . . . 342
Rigor mortis, observations on . . . . 278
Robertson, Dr. on the mortality of Hindu midwifery . . 245
Robin, M. on the sudoriparous glands . . . 280
Rootes, Dr. on the expulsion of the ovum entire at the full period . 140
Roux, M., case of hare-lip, by . . . . 159
Salter, Mr., cases of aneurism cured by compression . . 212
Sassafras root, analysis of . . . . 356

PAGE
Scabies, diagnosis of . . . . . 197
Scallan, Mr., on a peculiar ulcer of the anus . . . 86
Scammony biscuits, formula for . . . . 371
Scarlatina, incubation of . . . . . 170
croup, a complication of . . . . ib.
peculiar symptoms in . . . . ib.
Scarlatina, treatment of by acetic acid . . . 170
Scherer, on the extractive matters of the urine . . 319
Schlossberger, M. on the proportion of nitrogen in nutritious substances . . . . . 317
Schonlein on a peculiar symptom in scarlatina . . 170
Scott, Dr. case of extra-peritoneal dropsy . . . 187
Scrofula, Mr. Phillips on . . . . . 193
Dr. Walshe on muriate of barytes in . . . 201
Sharkey, Dr., St. Helier's, case of poisoning by opium . . 333
Shearman, Dr. epidemic fever described by . . . 167
Sialorrhœa, Dr. Glover's case of . . . . 186
Simpson, Prof. on the anatomical source of post-partum hemorrhage . 137
Skae, Dr. case of inversion of the uterus in the 4th month . . 151
Skin diseases, arsenic in . . . . . 76
remarkable case of, by Mr. Teevan . . 198
Snow, Dr. experiments by, on asphyxia . . . 345
Spine, lateral curvature of . . . . . 80
dislocation of, case . . . . . 131
Spitta, Mr. case of cyanosis by . . . . 183
Startin, Mr., on the use of glycerin in cutaneous diseases . 373
Sterility, Prof. Osiander on . . . . . 253
Stokes, Dr., case of slow pulse by . . . . 183
Stomach, spontaneous rupture of, cases . . . 186
Volkmann on the movements of . . . 285
Ruhle on the action of, in vomiting . . ib.
digestive powers of, experiments by M. Bernard . 286
Strychnia, poisoning by, Dr. J. Watson's case . . 339
Sudoriparous glands . . . . . 280
Sulphuric ether, application of, to the fauces and palate . . 372
Superfœtation, rare case of . . . . 256
Sutherland, Dr., on hill opium . . . . 357
Syme, Prof., on encysted tumours of the labium . . 87
on curable sinuses depending upon exfoliation of the bones of the pelvis . . . 88
case of calculus between the vagina and urethra . 134
Tamplin, Mr., on contraction of the lower jaw . . 123
Taylor, Mr., on intra-uterine perforation of the placenta . . 143
Dr., on pericarditis . . . . 185
Taxis, Mr. Teale on the injurious effects of . . . 91
Teale, Mr., notice of a work on hernia, by . . . 218
on the injurious effects of the taxis . . 91
Teevan, Mr. remarkable case of skin diaease, by . . 198
Teidemann, Prof., on gangrene of the hand and forearm from obliterated arteries . . 90
case of contraction of thoracic aorta to complete occlusion
on arctation and closure of arteries . . 203
on arteritis . . . . . 207

PAGE

Temperature of children, further observations on, by Roger . 284
the body, effects of bleeding, on . - ib.
post-mortem, case . . . . ib.
Tessier, Dr., on constipation from inertia of the bowels . . 58
the treatment of purulent absorption . . 166
abortive treatment of coryza . . 179
Tetanus, cases of . . . . 179, 214
Thirle, M., on the structure of the liver . . . 287
on the glands of the biliary ducts . . . 288
Tibia, abscess of the . . . . . 91
Tinctures, M. Personne on the preparation of . . . 350
Tobacco, Dr. Chapman on the effects of . . . 338
Tod, Mr., on the development of the chick . . . 296
Todd, Dr., on dropsy with albuminous urine . . . 62
Tomes, Mr., on the ultimate structure of bones . . . 279
haversian canals . . . . 280
Tonsillitis, abortive treatment of . . . . 180
Toogood, Dr., case of amputation of the uterus, by . . 254
Trials, medico-legal . . . . . 347
Trousseau, M., on anæmia . . . . 33
mercurial baths in eczema . . . 197
Tubercle, Hasse on . . . . . 174
Mr. Rainey on . . . . . ib.
pulmonary, anatomical seat of . . . 182
softening of . . . . . ib.
Tubercular meningitis, Dr. Hamernjk on . . . 160
Tuffnell, Mr., on straw splints . . . . 240
Tumours, ovarian, Dr. Bennett on the diagnosis of . . 145
Turnbull, Dr., on anæmia . . . . 36
anæmic dyspepsia . . . 48
Typhus, Dr. Aldridge on a nephritic complication in . . 168
Tweed, Mr., case, extraction of the placenta before the child . 268
Twins, long interval between the birth of, case . . 144
Tyte, Mr., case of rupture of the uterus, by . . 263
Umbilical cord, knots on . . . . . 142
Upshur, Dr., on miasmatic fevers . . . . 5
Urea, determination of . . . . . 320
Urine, healthy, analysis of . . . . . 319
extractive matters of . . . . ib.
in disease, analysis of . . . . 321
case of poisoning by . . . . 340
Uterine hemorrhage, anatomical source of . .
galvanism in, by Dorrington . . 269
Mr. Pretty's apparatus for checking . 270
Mr. Harvey's ditto . . . 271
Uterus, inversion of at the 4th month . . . 151
amputation of the neck of, contra-indications . . 143
rupture of, cure . . . . . 144
nature of the cicatrix after . . . 146
extirpation of, case . . . . 148
prolapse of, Dieffenbach's operation for . . 253
amputation of, cases . . . . 254
Valerianate of zinc, formula for . . . . 386

PAGE

Van Buren, Dr., report by, on quinine in miasmatic fevers . 9
Varicocele, Sir Astley Cooper's operation modified by Dr. Watson, of New York . . . . . 124
Velpeau, M., on sanguineous tumours of the vulva . . 252
Venesection, remarks on, by M. Bellinger . . . 214
Venosity, Dr. Puchelt on . . . . 165
Vinca minor, in passive hemorrhage . . . . 201
Volkmann, on different forms of muscular contraction . . 277
experiment on respiration . . . 284
on the movements of the œsophagus . . 285
stomach . . . ib.
lymphatic hearts . . . . 289
the muscular action of the bladder . . 291
the movement of the iris . . . 295
Vulva, sanguineous tumours of . . . . 252
Walsh, Dr., on muriate of barytes in scrofula . . . 201
Walshe, Dr., on cancer of the stomach . . . 50
notice of a work by on cancer . . . 172
Waters, Dr., on knots on the umbilical cord . . . 142
Watson, Dr., New York, on the treatment of varicocele . . 124
Liverpool, description of an epidemic by . . 167
Mr., case of œsophagotomy by . . . 216
Dr. James, cases of poisoning by strychnia . . 339
Weber, M., on the contraction of muscular fibre . . 277
peculiarities of the heart's action . . 282
absorption of chyle . . . 289
Wells, Mr., case of extraction of placenta before the child . 208
Williams, Dr. C. J. B., on delirium tremens . . . 21
the nature and treatment of epilepsy . 22
Wilson, Mr., successful application of galvanism by, in uterine hemorrhage . . . . . 273
Wood, Dr. Alex., on the treatment of albuminuria . . 67
Worthington, Mr., case of apoplexy in a child . . 159
Wuth, Dr., extirpation of a polypus from the frontal sinus . 129

END OF VOL. III.

C. and J. Adlard, Printers, Bartholomew Close.

*Lately published,*

RESEARCHES AND OBSERVATIONS

ON THE

# CAUSES OF SCROFULOUS DISEASES:

TRANSLATED FROM THE FRENCH OF

## M. LUGOL,

WITH AN ESSAY ON TREATMENT,

By W. H. RANKING, M.D. Cantab.

" It is the first part of this 'ten times revised' work which M. Lugol has just published, and after a careful perusal of its contents, we are able to say without hesitation, that it is one of the most valuable monographs that have been presented to the medical public for many a year, and is calculated to deeply modify the views of the profession with regard to the pathology of scrofula."—*Lancet.*

" No one can turn to this additional work, embodying an account of M. Lugol's experience in a particular and most important department of his labours, without the liveliest expectancy and interest. It was with feelings of this character we opened the volume, and we have not been disappointed." —*London and Edinburgh Monthly Journal of Medical Science.*

" It was with much satisfaction that we learned that M. Lugol's work was being translated, and it is with still greater satisfaction that we are able to announce that it has been admirably translated. It reads as the original composition of a scholar and man of taste."—*British and Foreign Medical Review.*

" We are glad to find that this valuable treatise has found so able and learned a translator and commentator as Dr. Ranking. We recommend it as a faithful and elegant translation."—*Lancet*

" To say that Dr. Ranking has performed his task in a most unexceptionable manner would be mere negative praise ; we think that we run no risk of contradiction, when we state that his work must take the very first place among the class to which it belongs. Dr. Ranking has fairly established himself in the good opinion of his medical brethren."—*Medical Times.*

# WORKS
ON
# MEDICINE AND SCIENCE
PUBLISHED BY
## JOHN CHURCHILL.

---

### DR. GOLDING BIRD, F.R.S.

**THE DIAGNOSIS, PATHOLOGICAL INDICATIONS AND TREATMENT OF URINARY DEPOSITS.** With Thirty-one Engravings on Wood. Post 8vo. cloth, 8*s*.

BY THE SAME AUTHOR.

**ELEMENTS OF NATURAL PHILOSOPHY**; being an Experimental Introduction to the Study of the Physical Sciences. Illustrated with Three Hundred Wood-cuts. Second Edition. Fcap. 8vo. cloth, 12*s*. 6*d*.

"We have great pleasure in welcoming a new edition of this excellent work, which we strongly recommended to our readers on its first appearance. We do not hesitate to pronounce it the best Manual of Natural Philosophy in our language."—*British and Foreign Medical Review.*

---

### DR. BUDD, F.R.S.

**ON DISEASES OF THE LIVER**; illustrated with Coloured Plates and Engravings on Wood. 8vo. cloth, 14*s*.

"We cannot too strongly recommend the diligent study of this volume. The work cannot fail to rank the name of its author among the most enlightened pathologists and soundest practitioners of the day."—*Medico-Chirurgical Review.*

---

### DR. CARPENTER, F.R.S.

**A MANUAL OF HUMAN PHYSIOLOGY**; specially designed for the Use of Students. With numerous Illustrations on Steel and Wood. Fcap. 8vo. cloth, 12*s*. 6*d*.

BY THE SAME AUTHOR.

**PRINCIPLES OF GENERAL AND COMPARATIVE PHYSIOLOGY**; intended as an Introduction to the Study of Human Physiology, and as a Guide to the Philosophical Pursuit of Natural History. Illustrated with numerous Figures on Copper and Wood. The Second Edition. 8vo. cloth, 18*s*.

"I recommend to your perusal a work recently published by Dr. Carpenter. It has this advantage, it is very much up to the present state of knowledge on the subject. It is written in a clear style, and is well illustrated."—*Professor Sharpey's Introductory Lecture.*

BY THE SAME AUTHOR.

**PRINCIPLES OF HUMAN PHYSIOLOGY.** One thick 8vo. vol. Third Edition. *In the Press.*

### SIR ASTLEY COOPER, BART., F.R.S.

## A TREATISE ON DISLOCATIONS AND FRACTURES OF THE JOINTS. Edited by BRANSBY B. COOPER, F.R.S. 8vo. cloth, 20*s.*

Sir Astley Cooper left very considerable additions in MS. for the express purpose of being introduced into this Edition.

"The present will be found a much more convenient edition of this invaluable work than its predecessors. Although new matter and new illustrations have been added, the price has been reduced from two guineas to twenty shillings. After the fiat of the profession, it would be absurd in us to eulogize Sir Astley Cooper's work on Fractures and Dislocations. It is a national one, and will probably subsist as long as English surgery."—*Medico-Chirurgical Review.*

BY THE SAME AUTHOR.

## OBSERVATIONS ON THE STRUCTURE AND DISEASES OF THE TESTIS. Illustrated with Twenty-four highly-finished coloured Plates. Second Edition. Royal 4to. cloth.

*Reduced from* 3*l.* 3*s. to* 1*l.* 10*s.*

### MR. FERGUSSON, F.R.S.E.

## A SYSTEM OF PRACTICAL SURGERY; with numerous Illustrations on Wood. Second Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

"Professor Fergusson's work, we feel persuaded, will be as great a favourite as it deserves, for it combines the powerful recommendations of cheapness and elegance with a clear, sound, and practical treatment of every subject in surgical science. The illustrations, by Bagg, are admirable—in his very best style."—*Edinburgh Journal of Medical Science.*

### MR. FOWNES, PH. D., F.R.S.

## A MANUAL OF CHEMISTRY; with numerous Illustrations on Wood. Fcap. 8vo. cloth, 12*s.* 6*d.*

"An admirable exposition of the present state of chemical science, simply and clearly written, and displaying a thorough practical knowledge of its details, as well as a profound acquaintance with its principles. The illustrations, and the whole getting-up of the book, merit our highest praise."—*British and Foreign Medical Review.*

BY THE SAME AUTHOR.

**THE ACTONIAN PRIZE ESSAY OF 100 GUINEAS,**

AWARDED BY THE COMMITTEE OF THE ROYAL INSTITUTION OF GREAT BRITAIN.

## CHEMISTRY; AS EXEMPLIFYING THE WISDOM AND BENEFICENCE OF GOD. Post 8vo. cloth, 6*s.*

WITH A PREFACE BY PROFESSOR LIEBIG.

### C. REMIGIUS FRESENIUS.

## ELEMENTARY INSTRUCTION IN CHEMICAL

ANALYSIS, as practised in the LABORATORY of GIESSIN. Edited by LLOYD BULLOCK.

QUALITATIVE; Second Edition. 8vo. cloth, 9*s*.

QUANTITATIVE; 8vo. cloth, 14*s*.

### G. J. GUTHRIE, F.R.S.

## THE ANATOMY OF THE BLADDER AND OF THE

URETHRA, and the Treatment of the Obstructions to which these Passages are liable. Third Edition. 8vo. cloth, 5*s*.

BY THE SAME AUTHOR.

## ON INJURIES OF THE HEAD AFFECTING THE

BRAIN. 4to. boards, 6*s*.

"The great practical importance of those affections which constitute Mr. Guthrie's Treatise. A commentary on such a theme, written by a surgeon of experience and reputation, cannot fail to attract the attention of the profession."—*British and Foreign Medical Review.*

### DR. GUY.

## HOOPER'S PHYSICIAN'S VADE-MECUM; OR,

MANUAL OF THE PRINCIPLES AND PRACTICE OF PHYSIC. New Edition, considerably enlarged, and re-written. Fcap. 8vo. cloth.

### DR. MARSHALL HALL, F.R.S.

## PRACTICAL OBSERVATIONS AND SUGGESTIONS

IN MEDICINE. Post 8vo. cloth, 8*s*. 6*d*.

### MR. HOOD.

## ON THE DISEASES MOST FATAL TO CHILDREN,

with Reference to the Propriety of Treating them as proceeding from Irritation, and not from Inflammation. Post 8vo. cloth, 6*s*.

"The views of Mr. Hood are, to a greater extent than is usually imagined, borne out by all the best late writers who have seen much practice among children. The work is purely a practical one, and is a valuable contribution to our knowledge."—*Edinburgh Medical and Surgical Journal.*

### DR. HOPE, F.R.S.

## A TREATISE ON THE DISEASES OF THE HEART

AND GREAT VESSELS, and on the Affections which may be mistaken for them. With Plates. Third Edition. 8vo. cloth, 18*s*.

### DR. HENNEN, F.R.S.

## PRINCIPLES OF MILITARY SURGERY; comprising Observations on the Arrangement, Police, and Practice of Hospitals; and on the History, Treatment, and Anomalies of Variola and Syphilis. Illustrated with Cases and Dissections. Third Edition, with Life of the Author, by his Son, Dr. JOHN HENNEN. 8vo. boards, 16*s.*

### MR. LAWRENCE, F.R.S.

## A TREATISE ON RUPTURES. The Fifth Edition, considerably enlarged. 8vo. cloth, 16*s.*

"The peculiar advantage of the treatise of Mr. Lawrence is, that he explains his views on the anatomy of hernia and the different varieties of the disease in a manner which renders his book peculiarly useful to the student. It must be superfluous to express our opinion of its value to the surgical practitioner. As a treatise on hernia, presenting a complete view of the literature of the subject, it stands in the first rank."—*Edinburgh Medical and Surgical Journal.*

### MR. LISTON, F.R.S.

## PRACTICAL OR OPERATIVE SURGERY; with numerous Engravings on Wood. Fourth Edition. 8vo. cloth, 22*s.*

*Extract from Preface.*

"A new edition having been called for, the letter-press has been revised and corrected with care; extensive additions have been made, and many new wood-engravings added. These improvements, it is hoped, may render the work still more useful to surgical pupils, and better entitled to the patronage of the profession at large."

### DR. HUNTER LANE, F.L.S., F.S.S.A.

## A COMPENDIUM OF MATERIA MEDICA AND PHARMACY; adapted to the London Pharmacopœia, embodying all the New French, American, and Indian Medicines; and also comprising a Summary of Practical Toxicology. One neat pocket volume, cloth, 5*s.*

"Dr. Lane's volume is on the same general plan as Dr. Thompson's long known Conspectus; but it is much fuller in its details, more especially in the chemical department. It seems carefully compiled, is well suited for its purpose, and cannot fail to be useful."—*British and Foreign Medical Review.*

### DR. LEE, F.R.S.

## CLINICAL MIDWIFERY; with the Histories of Four Hundred Cases of Difficult Labour. Fcap. 8vo. cloth, 4*s.* 6*d.*

"The following Reports comprise the most important practical details of all the cases of difficult parturition which have come under my observation during the last fifteen years, and of which I have preserved written histories. They have now been collected and arranged for publication, in the hope that they may be found to illustrate, confirm, or correct the rules laid down by systematic writers, for the treatment of difficult labours, and supply that course of clinical instruction in midwifery, the want of which has been so often experienced by practitioners at the commencement of their career."—*From Preface.*

### MR. LANGSTON PARKER.

## THE MODERN TREATMENT OF SYPHILITIC

DISEASES, both Primary and Secondary; comprehending the Improved Methods of Practice adopted in this Country and on the Continent, with numerous Formulæ for the Preparation and Administration of the new Remedies; to which is added an Account of a Safe and Successful Mode of Treating Chronic, Constitutional, and Protracted Syphilis, by the Mercurial Vapour Bath. Second Edition, considerably enlarged. Post 8vo. cloth, 6*s.* 6*d.*

### DR. MILLINGEN.

## ON THE TREATMENT AND MANAGEMENT OF

THE INSANE: with Considerations on Public and Private Lunatic Asylums. 18mo. cloth, 4*s.* 6*d.*

"Dr. Millingen, in one small pocket volume, has compressed more real solid matter than could be gleaned out of any dozen of octavos, on the same subject. We recommend this vade-mecum as the best thing of the kind we ever perused." —*Dr. Johnson's Review.*

### DR. PROUT, F.R.S.

## ON THE NATURE AND TREATMENT OF STO-

MACH AND RENAL DISEASES; being an Inquiry into the Connexion of Diabetes, Calculus, and other Affections of the Kidney and Bladder with Indigestion. Fourth Edition. With Six Engravings. 8vo. cloth, 20*s.*

BY THE SAME AUTHOR.

## CHEMISTRY, METEOROLOGY, AND THE FUNC-

TION OF DIGESTION, considered with reference to NATURAL THEOLOGY. Being a Third Edition, with much new matter, of the "Bridgewater Treatise." 8vo. cloth, 15*s.*

### DR. RAMSBOTHAM.

## THE PRINCIPLES AND PRACTICE OF OBSTE-

TRIC MEDICINE AND SURGERY, IN REFERENCE TO THE PROCESS OF PARTURITION. Illustrated with One Hundred and Ten Plates on Steel and Wood; forming one thick handsome volume. Second Edition. 8vo. cloth, 22*s.*

"The work of Dr. Ramsbotham may be described as a complete system of the principles and practice of midwifery; and the author has been at very great pains indeed to present a just and useful view of the present state of obstetrical knowledge. The illustrations are numerous, well selected, and appropriate, and engraved with great accuracy and ability. In short, we regard this work, between accurate descriptions and useful illustrations, as by far the most able work on the principles and practice of midwifery, that has appeared for a long time. Dr. Ramsbotham has contrived to infuse a larger proportion of common sense, and plain unpretending practical knowledge into his work, than is commonly found in works on this subject; and as such we have great pleasure in recommending it to the attention of obstetrical practitioners."—*Edinburgh Medical and Surgical Journal.*

### DR. RANKING.

## RESEARCHES AND OBSERVATIONS ON SCROFULOUS DISEASES.

By J. G. LUGOL. Translated, with an Appendix. 8vo. cloth, 10*s.* 6*d.*

### DR. RYAN.

## THE UNIVERSAL PHARMACOPŒIA; OR, A PRACTICAL FORMULARY of HOSPITALS, both BRITISH and FOREIGN.

Third Edition, considerably enlarged. 32mo. cloth, 5*s.* 6*d.*

"This work is a conspectus of the best prescriptions of the most celebrated physicians and surgeons throughout the civilized world. It gives the doses and uses, the rules for prescribing, the actions of medicines on the economy, the various modes of administering them, and the principles on which they are compounded."

### MR. SNELL, M.R.C.S.

## A PRACTICAL GUIDE TO OPERATIONS ON THE TEETH.

With Plates. 8vo. cloth, 8*s.*

"Those of our readers who practise in the department of surgery on which Mr. Snell's essay treats will find some useful instructions on the mode of extracting teeth," &c. &c.—*Medical Gazette.*

### DR. STEGGALL.

*FOR MEDICAL AND SURGICAL EXAMINATION.*

I.

## A MANUAL FOR THE USE OF STUDENTS PREPARING FOR MEDICAL EXAMINATION;

to which is now added, THE ELEMENTS OF BOTANY. Tenth Edition. 12mo. cloth, 8*s.* 6*d.*

II.

## A MANUAL FOR THE COLLEGE OF SURGEONS;

12mo. cloth, 12*s.* 6*d.*

III.

## GREGORY'S CONSPECTUS MEDICINÆ THEORETICÆ.

The First Part, containing the Original Text, with an Ordo Verborum and Literal Translation. 12mo. cloth, 10*s.*

IV.

## THE FIRST FOUR BOOKS OF CELSUS.

Containing the Text, Ordo Verborum, and Translation. 12mo. cloth, 8*s.*

*** The above two works comprise the entire Latin Classics required for Examination at Apothecaries' Hall.

V.

## A TEXT-BOOK OF MATERIA MEDICA AND THERAPEUTICS.

12mo. cloth, 7*s.*

VI.

## FIRST LINES FOR CHEMISTS AND DRUGGISTS PREPARING FOR EXAMINATION AT THE PHARMACEUTICAL SOCIETY.

18mo. cloth, 3*s.* 6*d.*

### MR. SHAW, M.R.C.S.

## THE MEDICAL REMEMBRANCER; OR, BOOK OF EMERGENCIES: in which are concisely pointed out the Immediate Remedies to be adopted in the First Moments of Danger from Poisoning, Drowning, Apoplexy, Burns, and other Accidents; with the Tests for the Principal Poisons, and other useful Information. Second Edition. 32mo. cloth, 2*s.* 6*d.*

"The plan of this little book is well conceived, and the execution corresponds thereunto. It costs little money, and will occupy little room; and we think no practitioner will regret being the possessor of what cannot fail, sooner or later, to be useful to him."—*British and Foreign Medical Review.*

### J. STEPHENSON, M.D., & J. M. CHURCHILL, F.L.S.

## MEDICAL BOTANY; OR, ILLUSTRATIONS AND DESCRIPTIONS OF THE MEDICINAL PLANTS OF THE PHARMACOPŒIAS; comprising a popular and scientific Account of Poisonous Vegetables indigenous to Great Britain. New Edition, edited by GILBERT BURNETT, F.L.S., Professor of Botany in King's College. In three handsome royal 8vo. volumes, illustrated by Two Hundred Engravings, beautifully drawn and coloured from nature, cloth lettered, Six Guineas.

"The most complete and comprehensive work on Medical Botany."—*Pharmaceutical Journal.*

### ALFRED S. TAYLOR, F.R.S.

## A MANUAL OF MEDICAL JURISPRUDENCE.

Second Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

"We have the pleasure of meeting the accumulated stores of science and experience on this branch of knowledge, condensed and made accessible in this admirable volume. It is, in fact, not only the fullest and most satisfactory book we have ever consulted on the subject, but it is also one of the most masterly works we have ever perused."—*Medical Gazette.*

"The most elaborate and complete work that has yet appeared. It contains an immense quantity of cases, lately tried, which entitles it to be considered now what Beck was in its day."—*Dublin Medical Journal.*

"Mr. Taylor possesses the happy art of expressing himself on a scientific topic in intelligible language. The size of his Manual fits it to be a circuit companion. It is one of the most beautiful specimens of typography we ever had the pleasure—and it is a pleasure—of perusing."—*Law Times.*

### BY A PRACTISING PHYSICIAN.

## THE PRESCRIBER'S PHARMACOPŒIA; containing all the Medicines in the London Pharmacopœia, arranged in Classes according to their Action, with their Composition and Doses. Third Edition. 32mo. cloth, 2*s.* 6*d.*

"Never was half-a-crown better spent than in the purchase of this '*Thesaurus Medicaminum.*' This little work, with our visiting-book and stethoscope, are our daily companions in the carriage."—*Dr. Johnson's Review.*

## DR. WILLIAMS, F.R.S.

**PRINCIPLES OF MEDICINE**; comprehending General Pathology and Therapeutics. Demy 8vo. cloth, 12*s.*

"The entire work is one of no ordinary ability, and well sustains the reputation of the author."—*Provincial Medical Journal.*

"We have no hesitation in asserting, that the reader will derive greater pleasure, and more useful practical knowledge, from this book, than from any other treatise on the subject, that we are acquainted with. Dr. Williams has already earned for himself a lasting fame, by his work on Diseases of the Chest; and that must, if possible, be increased still more by his 'Principles of Medicine.'"—*Dublin Medical Journal.*

## MR. ERASMUS WILSON, F.R.S.

**THE ANATOMIST'S VADE-MECUM; A SYSTEM OF HUMAN ANATOMY.** With numerous Illustrations on Wood. Third Edition. Fcap. 8vo. cloth, 12*s.* 6*d.*

"As a satisfactory proof that the praise we bestowed on the first edition of this work was not unmerited, we may observe it has been equally well thought of in foreign countries, having been reprinted in the United States and in Germany. In every respect, this work, as an anatomical guide for the student and the practitioner, merits our warmest and most decided praise."—*Medical Gazette.*

"We noticed with high praise, on its first publication, this singularly beautiful and excellent work. This new edition calls for the repetition of our encomiums, and with interest, inasmuch as all the old merits are enhanced by cognate novelties both of text and illustration."—*British and Foreign Medical Review.*

BY THE SAME AUTHOR.

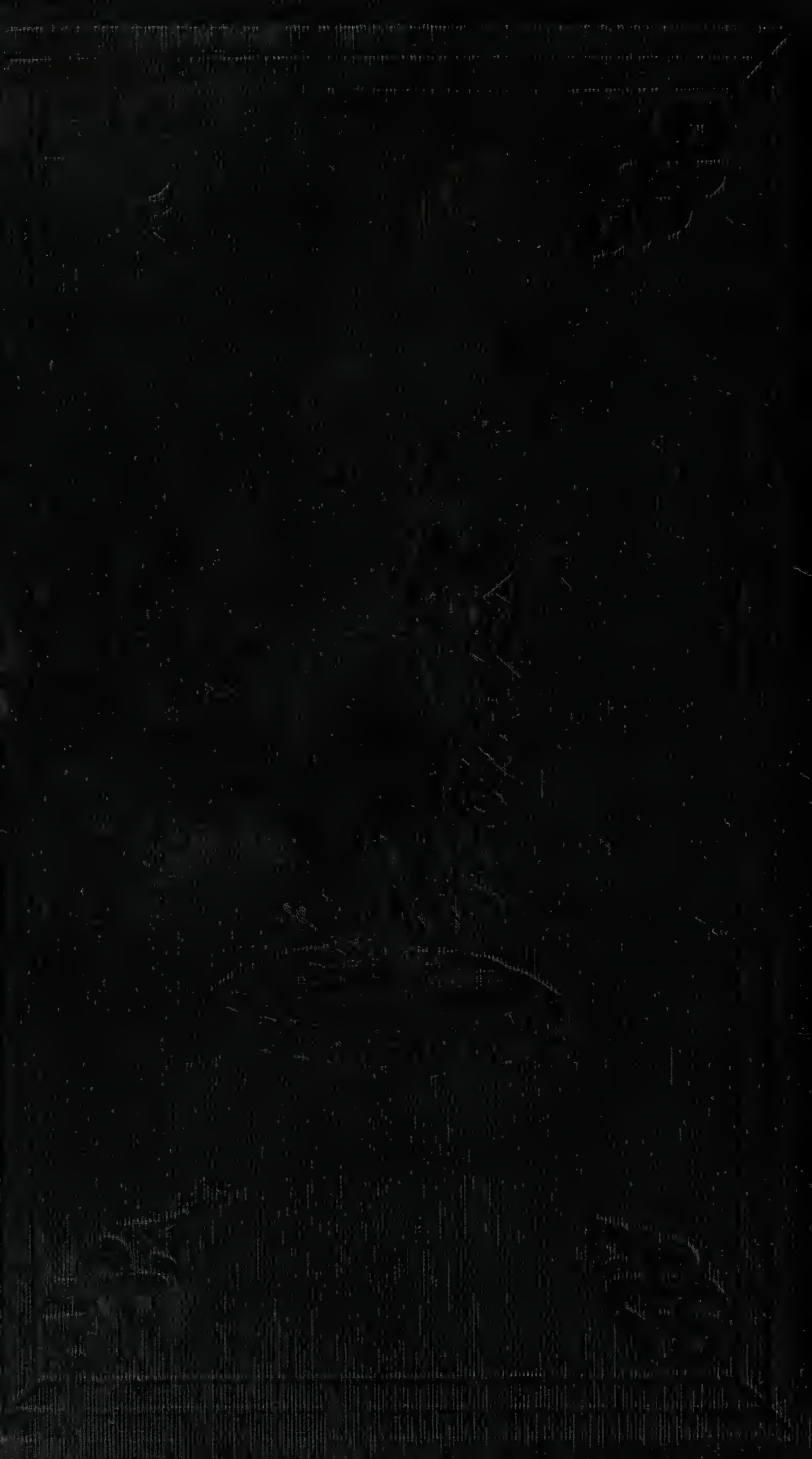
**DISEASES OF THE SKIN**; a Practical and Theoretical Treatise on the DIAGNOSIS, PATHOLOGY, and TREATMENT of CUTANEOUS DISEASES, arranged according to a Natural System of Classification, and preceded by an Outline of the Anatomy and Physiology of the Skin. 8vo. cloth. Second Edition. *In the Press.*

"We have now reached the conclusion of the volume, and our perusal has been both agreeable and instructive. The book is not written for a day, but for an age, the style is good and precise, the language well selected, and the information which it contains, genuine and copious. We think it adapted to cast a new light on the pathology and treatment of diseases on the skin, and to form an admirable guide to the medical practitioner, to whom and to the student we warmly recommend it."—*Dr. Johnson's Review.*

BY THE SAME AUTHOR.

**A PRACTICAL TREATISE ON HEALTHY SKIN**; with Rules for the Medical and Domestic Treatment of Cutaneous Diseases. Illustrated with Steel Engravings. Post 8vo. 10*s.* 6*d.*

"The student will be delighted to find his labours so much facilitated, and a few hours of agreeable society with a most pleasantly-written book will do more to make him acquainted with a class of obscure diseases than all that has been previously written on the subject."—*Lancet.*

London: Printed by W. Blanchard and Sons, 62 Millbank Street, Westminster.

BOUND BY
REMNANT & EDMONDS
LONDON